



Kildare County Council
Comhairle Contae Chill Dara

Ardclough Biodiversity Action Plan 2023-28



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Ardclough Biodiversity Action Plan 2023-28

Contents

Summary of Principles, Objectives and Targets.....	ii
Section 1: Introduction.....	1
Section 2: Biodiversity in Our Area.....	5
Section 3: A Call to Action.....	9
Objective 1: Make room for biodiversity in Ardclough.....	10
Objective 2: Controlling Invasive Alien Species.....	21
Objective 3: Move towards the elimination of pesticide use in the local area.....	23
Objective 4: Raising awareness of biodiversity.....	26
Objective 5: Collecting Evidence to Track Change and Measure Success.....	31
Section 4: Resources.....	36
Appendix 1: Managing Community Meadows.....	40
Appendix 2: Note on Pollinator Friendly Planting.....	42
Appendix 3: Tree Planting Design & Maintenance Considerations.....	43
Appendix 4: Ash Dieback.....	49
Appendix 5: An Taisce Wildlife Pond Project.....	50
Appendix 6: Making and Leaving Room for Biodiversity.....	51
Appendix 7: Common Terrestrial Plant Invasive Species.....	52
Appendix 8: Soils and Biodiversity.....	54
Appendix 9: Canals and Biodiversity.....	56
Appendix 10: Legal Protection of Biodiversity in Co Kildare.....	63

Getting Involved:

If you wish to get involved with any of the actions outlined in this Plan, please feel free to contact the following:

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Photographs

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Summary of Principles, Objectives and Targets

We are currently in the middle of a biodiversity crisis. This is not just a problem for countries in other parts of the world. Here in Ireland, a Biodiversity Crisis was officially declared by the Dáil in 2019. Although we lost most of our native woodland's long ago, we still are seeing declines in native biodiversity across the country. To stop this decline, we will need to increase our efforts significantly at all levels of society including at the local level.

General principles:

The following general principles guide this Plan and actions:

1. Protect what you have! As a first step, ensure the protection of the existing sites and features of biodiversity interest in the local area and the network of green corridors connecting them. Where gaps exist in the network strive to connect them.
2. Less is more! Work with, rather than against nature to make actions taken for biodiversity conservation more efficient. Areas of natural succession and 'untidy' spaces with nettles, briars, etc. are positive for nature and reduce unnecessary maintenance.
3. Manage more areas of amenity grasslands less intensively as meadow. This includes grasslands on roadside verges, parks, residential estates, gardens, commercial estates, and elsewhere in the local area.
4. Increase native tree cover where space allows in the local area.
5. Move towards the elimination of herbicide in the local area.
6. Take steps to control and eradicate invasive species in the local area.
7. Raise awareness and engage the local community on issues and actions to conserve biodiversity in the area. This can include practical volunteer events, talks and walks, children's events, etc.
8. Monitor and survey biodiversity in the area to inform decision making processes and the success of current actions.
9. Encourage and promote actions to make the community more self-sufficient and reduce its environmental footprint, including the people, landowners, businesses, and other land managers in it.
10. Try to understand the big picture and be aware that some actions considered to be beneficial may not always be of benefit to biodiversity and nature in every setting. For example, planting trees is usually a good idea, but not if we are trying to protect a rare grassland and its associated flora and fauna.
11. Remember that people can benefit from biodiversity, as much as biodiversity can benefit from people. Strive to make our community spaces, and all new developments, places that deliver a range of environmental, cultural, and economic benefits. For example, trees can improve drainage and air quality, sequester carbon, provide shade and shelter, create habitat for biodiversity, and much more.
12. A coordinated response to climate change and biodiversity decline is required and is taken into account in the preparation of this BAP. Here wherever possible actions that are beneficial to both climate change and biodiversity are recommended, helping to mitigate and adapt to climate change as well as to conserve and restore biodiversity.

Ardclough Biodiversity Action Plan 2023-28

Preface to the Objectives, Targets and Actions:

This is a shared plan of action for Ardclough community to build on recent progress and help increase biodiversity in the area. The plan has five Objectives each with specific targets and a list of actions. These targets (listed below) and actions, which are detailed in Section 3, are to be considered as guides for the community to achieve these Objectives. Their implementation is dependent on the resources available to the community of Ardclough including volunteer time, funding, and external support. Many of the actions are proposed to be delivered as part of the Kildare LBAP Network, which is due to be established in summer / autumn 2023. Even achieving some of these targets and actions will help make Ardclough a better place for biodiversity.

Objective 1	Make room for biodiversity in Ardclough
Target 1.1	Make more room for biodiversity in the centre of Ardclough
Target 1.2	Develop the grounds of St Anne’s Primary School as a space that is good for outdoor learning and biodiversity
Target 1.3	Make more room for biodiversity on the grounds of Ardclough GAA
Target 1.4	Make more room for biodiversity in the existing residential estates
Target 1.5	Work with garden owners to take actions for biodiversity
Target 1.6	Manage the approach roads with biodiversity in mind
Target 1.7	Manage the canal corridor with biodiversity in mind
Target 1.8	Protect and strengthen existing features of biodiversity importance and links between them
Target 1.9	Use farm green infrastructure to make the surrounding farms more sustainable and increase biodiversity
Target 1.10	Continue conservation actions for barn owls and bats
Target 1.11	Mitigate against the potential impacts of Ash Dieback
Target 1.12	Ensure new community planting projects are carried out in a sustainable manner
Objective 2	Controlling Invasive Alien Species
Target 2.1	Take measures to control Invasive Alien Species in the community
Objective 3	Move towards the elimination of pesticide use in the local area
Target 3.1	Move towards the elimination of pesticide use in the local area
Objective 4	Raising awareness of biodiversity
Target 4.1	Raise awareness of local biodiversity and biodiversity projects
Target 4.2	Develop a waymarked looped walk from the village to the canal
Target 4.3	Refresh and update biodiversity interpretation signage
Target 4.4	Work with the local authority on issues of biodiversity concern regarding new developments and future planning of the area
Target 4.5	Promote and support positive actions to encourage more sustainable lifestyles and individual choices
Objective 5	Citizen Science: Collecting evidence to track change and measure success
Target 5.1	Monitor and record biodiversity and biodiversity actions taken
Target 5.2	Build the capacity in the community to manage and record biodiversity
Target 5.3	Increase participation with this Biodiversity Action Plan

Section 1: Introduction

Ardclough is a “hamlet” based on The Canal Bridge (Henry Bridge) to the railway bridges on the Celbridge road and at Clownings. The ‘village centre’ as it is known today includes the new St. Anne’s NS, the Village (Community) Centre, Church, GAA club, Triangle; William’s Grove, Lishandra, Wheatfield houses together with other one-off houses within those boundaries.

The actual community of Ardclough, reaches well into the hinterland; up Boston Road, to Thornton’s Road junction, the original Ardclough Village (on the Canal Bank), the Canal Bank itself from the 13th Lock, on both sides of the Canal to at least 1km along the Bank towards Ponsonby Bridge (Old Ardclough); the Bank from Lyons (Kearneystown) to Baronrath; and a small distance past the Clownings railway bridge to Clownings House.

The habitats and landscape management systems in the area are diverse (as are the stakeholders!) and include; public areas managed by Kildare Co. Co. (e.g. the Triangle), a private gated community, other private gardens, several farms, the GAA grounds, Church grounds, a school campus, the Village Centre community garden, and of course the canal banks, managed by Waterways Ireland.



There are also wooded or “wilded” areas such as the small wood at Henry Bridge, the north bank of the Canal from the Lock Keepers’ Cottages to Henry Bridge (very seldom accessed), the Canal Banks themselves, the parcel of land between Lishandra and the laneway to the Lock Keepers Cottages, on the Celbridge Road (which has been designated as “nature reserve” in several Council documents). Another interesting habitat type in the area is the privately owned and non-public old quarry lakes behind “old Ardclough”.

Several rare and endangered species are known to live in or to frequent this beautiful area of Kildare, including Yellowhammer, Merlin, Barn Owl, Orchid species, Pine Marten, Otter, and Smooth Newt among others.



The range of habitat types offers great opportunities for wildlife and biodiversity to thrive. The range of landowners and landscape managers will require sensitivity in delivery of this action plan. However, there is a high level of interest existing within the community for promoting biodiversity, and coupled with the high nature base, there is some very valuable work that can be done to preserve and improve the locality with regards biodiversity. This work will also likely provide a new opportunity to develop community inclusion, interaction, and plenty of very meaningful and enjoyable activity for young and old to be part of.

This Biodiversity Action Plan aims to guide the local community and stakeholders in their efforts to protect and restore some of this natural heritage and maximise the benefits that nature can provide for the people of Ardclough. The Plan is not intended to be a static document but rather to be regularly reviewed and updated over its life.

Ardclough Biodiversity Action Plan 2023-28

What is Biodiversity?

Biodiversity refers to the variety and variability of all living things including plants, animals, microbes, fungi and people. It also includes the places where plants and animals live (known as habitats), the interactions among living things (the web of life) and their environment (ecology).

Biodiversity is all around us, everywhere and in our everyday life. It forms complex systems that sustain life on Earth. Each part of the system is important no matter how small or trivial it may seem to us. Think of it as a puzzle; having a biodiverse system allows us to see the full puzzle but when we start to remove different pieces, or species, the picture loses important parts.



Why Protect It?

We are losing biodiversity around the globe at a rate unprecedented in human history. The number of plants, insects, mammals, and birds that are threatened or endangered grows every year, while the land, ocean and atmosphere are being altered to an unparalleled degree. This is not just a problem for other parts of the world either. In Ireland, biodiversity still demonstrates worrying and ongoing declines. In 2019, a Biodiversity Crisis was officially declared by the Irish government in the Dáil. At the time they reported that Irish habitats, especially the peatlands, grasslands, and some of the marine habitats, remain under enormous pressure and that insects were declining on a massive scale throughout Europe – and this is still the case.

We rely completely on biodiversity to provide us with the basic elements we need such as clean air and water, food, fuel, building products and medicines. We also rely on it for the many free ‘services’ such as nutrient recycling, pollination and water filtration etc. It is therefore vital that we make space for nature in our towns, villages and countryside for us to continue living full and healthy lives.

Finally, we should respect the wonder of nature in all its glory and diversity and recognise that it has its own intrinsic value i.e. that nature has value in its own right, independent of human uses, even if it does not directly or indirectly benefit humans.



Why is Biodiversity in trouble?

In 2019, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services¹ (IPBES) listed seven major global drivers of biodiversity loss. These drivers also affect biodiversity at the national and local level. In the same year, Ireland's latest report (Article 17) on the Status of EU Protected Habitats and Species² found that of the 59 habitat types and 60 species assessed, 85% of the habitats and 30% of the species were in an 'unfavourable' status (i.e. Inadequate or Bad), indicating no improvement on the 2013 assessments or a continuing decline in condition, extent and numbers. The report identified the main pressures on habitats as:

- Ecologically unsuitable grazing levels, which can be undergrazing (or even abandonment) as well as overgrazing;
- Pollution of fresh waters & coastal marine waters;
- Drainage and / or cutting of peatlands;
- Invasive species; and
- Recreational pressures.

When habitats become degraded there is a negative knock-on effect on the species that these habitats support. Considering that all habitats and species assessed in the Article 17 report are afforded legal protection, with SAC (Special Area of Conservation) designation for many of these habitats and species, the high level of unfavourable assessments is of concern and highlights the plight of biodiversity for habitats and species not specifically protected under EU directives. The government has committed to a broad range of actions with commitments across government departments to restore degraded ecosystems and species.

Main Drivers of Biodiversity Loss (IPBES)

1. People's disconnect with nature

Connectedness to nature is the extent to which people are aware of their natural world and dependence on it. As human societies became industrialised and urbanised this connection with the natural world was lost. This disconnection is at the heart of our environmental crisis and alongside the lack of recognition for the value and importance of nature (Driver 2) are often the precursor to the remaining drivers listed here.

2. Lack of recognition for the value and importance of nature

In many areas of human activity, nature has been taken for granted. The value of ecosystem services - the services that nature provides to us and which support our societies - has not been counted and nature's intrinsic value is rarely recognised.

3. Invasive Species and Disease

Invasive species out compete native species for space, food and other resources and can fundamentally alter local ecosystems. For example, the introduction of the grey squirrel has resulted in a dramatic decline in the native red squirrel population and invasive plants such as Cherry Laurel continue to harm native habitats (native woodlands in the case of Cherry Laurel). The global trade in animals and plants also risks the spread of pathogens to which native species have no resistance, e.g. Ash Dieback Disease.

4. Pollution

Pollution has devastating direct effects on biodiversity, particularly in freshwater and marine habitats. Examples include the plastics, chemicals including pesticides, and nutrients released into the environment.

5. Climate Change

The climate crisis is dismantling ecosystems at every level - extreme weather events destroy habitats; warmer temperatures change the timing of natural events and the distribution of species and their range is also changing.

6. Direct exploitation of organisms

Logging, hunting, and fishing and the extraction of soils and water particularly at industrial scale has significant negative impact on biodiversity.

7. Changing use of sea and land

Human land management for intensive agriculture, deforestation, industrialisation, extractive industries and urbanisation leads to an increase in habitat loss, degradation and fragmentation.

¹ The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services: <https://ipbes.net/>

² National Parks & Wildlife Service: <https://www.npws.ie/publications/article-17-reports/article-17-reports-2019>

Ardclough Biodiversity Action Plan 2023-28

One may feel powerless at this depressing list and yes, most of biodiversity loss will have to be addressed at a statutory level. However, these problems are occurring on our own doorsteps and therefore we can do something to make a positive change!

Habitat destruction refers to rainforests being cleared in Brazil and Borneo but it also refers to hedgerows being cut back too hard, herbicide being sprayed along ditches and verges and wildflowers in our lawns being unable to flower due to over-mowing!

In the words of our former President and former UN Special Envoy on Climate Change Mary Robinson, current chair of The Elders, we need a 'moonshot mentality' meaning we can still head into our best future world but positive leadership between civil society, business and governments is needed to deliver this. She feels that while the transition to net zero is generally depicted as sacrifices and costs, a green transition actually has the capacity to raise standards of living all over our planet. In her own words:

"I think the world has to have a wake-up moment of responsibility now. It's not a guilt trip. It's not making accusations to people. It's saying we have to manage this and manage it well, because our best world is still in front of us. We can get there."

So, What Can Ardclough Do?

This Biodiversity Action Plan was commissioned for the community of Ardclough to have a professionally guided tool to make more room for biodiversity and engage the wider community.

Section 2 will highlight some of the main areas of biodiversity in the area.

Section 3 will list the biodiversity objectives and targets, and the actions that will achieve them.

Finally, **Section 4** and the **Appendices** feature the resources that will help guide the community efforts that will be needed to ensure the protection and enhancement of biodiversity in the area.



Section 2: Biodiversity in Our Area

While being near to areas of high population, Ardclough retains a tranquil and rural atmosphere that is enhanced by the diversity of high-quality designed landscape features and natural habitats found in the area. The village is surrounded by good agricultural land and is near the Grand Canal (NHA 2104).

The area is primarily covered in a loamy drift soil-type over carboniferous limestone bedrock geology. Ardclough Village area is situated in what is termed in the Kildare Landscape Character assessment the northern lowland plains of County Kildare. The slope and topography is gentle; and concentrations of tillage lands and pasturage in this lowland area tend to be characterised by extensive views across large fields with maintained field boundaries, treelines and hedgerows. This agricultural landscape provides habitat for a variety of plant and animal species, including species commonly associated with areas of agricultural landscape such as foxes, badgers, hares. Bird species associated with tillage include the less common Yellow Hammer and Linnet. Birds of prey include Barn Owl. The hedgerows that are found throughout the area are an important habitat for many species of birds and insects, they also form a network for nature an important ecological corridor feature of the Irish countryside.

The Grand Canal Corridor (NHA 2104) is the most significant ecological corridor in the area and is home to a variety of important aquatic life, including fish, waterfowl, and amphibians. The canal corridor also supports a variety of habitats including fringing reed bed and large sedge swamp, marsh, wet grassland, dry meadows and grassy verges, and calcareous grassland at the edge of the towpath. Significant hedgerows and treelines and small areas of scrub woodland are also found bounding the canal corridor.

The special nature of the landscape of Ardclough is enhanced significantly by the presence of strong elements of designed landscape, originating in the 18th and early 19th centuries.

The designed landscape of the area contains complex and parklands, foremost of which is the Lyon's Estate, the parklands are of late 18th and early 19th century origin and possess many late 18th century *naturalistic style* features including clear outer boundaries, estate walls, artificial waterbodies/lakes, parkland trees and designed woodland. This parkland provides majestic settings for the historic house. Parkland is traditionally a large area of pasture/meadow land with few internal boundaries dotted with trees and wooded copses, some now of considerable age and ecological value.

Within the confines of Ardclough Village there are still many natural and semi-natural habitats to be found, ranging from its hedgerows to groups of trees, grassland areas in residential estates which provide a matrix of natural habitat accessible to all.

Please note that further details on your local conservation site details can be found at: www.npws.ie/protected-sites/



Ardclough Biodiversity Action Plan 2023-28

Main Biodiversity Sites

There are numerous places of important biodiversity value in Ardclough and the surrounding environs. The following are some of these.

Some Local Sites of Biodiversity Interest

Grand Canal (pNHA 002104): A jewel of a landscape feature to have on the village doorstep, really came into its own as a wonderful ecosystem service during the pandemic with lots of locals walking. It is protected as a Natural Heritage Area for its habitats and species. According to the NPWS site synopsis 'The Grand Canal is a man-made waterway linking the River Liffey at Dublin with the Shannon at Shannon Harbour and the Barrow at Athy. The Grand Canal proposed Natural Heritage Area (pNHA) comprises the canal channel and the banks on either side of it. The canal system is made up of a number of branches - the Main Line from Dublin to the Shannon, the Barrow Line from Lowtown to Athy, the Edenderry Branch, the Naas and Corbally Branch and the Milltown Feeder. The Kilbeggan Branch is dry at present, but it is hoped to restore it in the near future. Water is fed into the summit level of the canal at Lowtown from Pollardstown Fen, itself a pNHA. A number of different habitats are found within the canal boundaries - hedgerow, tall herbs, calcareous grassland, reed fringe, open water, scrub and woodland.'

Lyons Estate Farm: Lyons Demesne, also Lyons Estate, is a country house and estate in Lyons Hill, County Kildare, Ireland. It is located approximately 2km drive from Ardclough Village. The gardens of the estate were developed by Lawless between 1804 and 1810 and includes a 22 acre (8.9 ha) spring-fed, stocked lake. The University College Dublin Lyons Research Farm consists of a portion of the original Lyons Estate, having retained approximately 580 acres (230 ha), which are used by the School of Agriculture, Food Science and Veterinary Medicine for teaching and research activities. The farm and Demesne retain some areas of plantation woodland, hedgerows and watercourses. The farm has an active Biodiversity Management Plan.

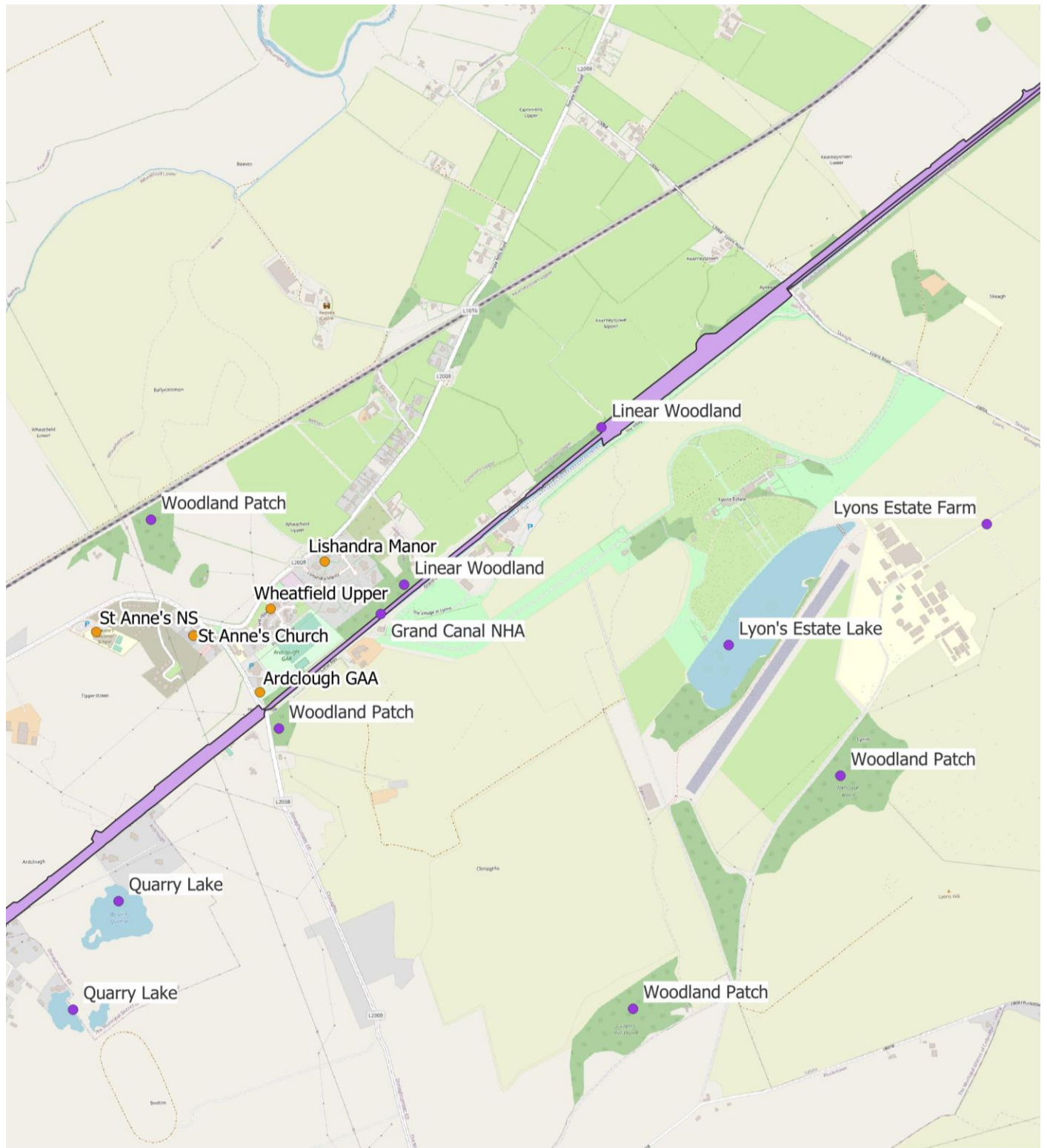
Lakes & Ponds of Ardclough: A small number of lakes and ponds have naturally developed over time in Ardclough in the old quarries that dot the landscape of this part of Co. Kildare. They add greatly to the diversity of habitats in the locality, not only providing aquatic places but also the woodland scrub, rock faces and wild grasslands that also form part of these areas. Such areas are great for plants but also invertebrates and birds, greatly adding to the biodiversity of Ardclough.

Hedgerows: Native hedgerows are in many places the remnants of our wild woodlands that have been cleared away. They are the reservoirs of many woodland species of trees, shrubs, herbs, birds and insects in our managed landscape. They are also of huge importance for their wildlife corridor value. This can be easily seen if you look at an aerial image of your locality. We know that bats use hedgerows like highways across the countryside. You can see how the hedgerows provide the links and safe passage for wildlife across our countryside. This is why it is always a big blow for the local biodiversity when a hedgerow is cleared to build a house etc. Hedgerow management is also of huge importance in relation to the biodiversity value of a hedge. Birds need hedges to be at least 1.5m high in order for them to provide safe nesting places. Also hedgerows can be of great food value both for pollinators and birds and mammals with their flowers and fruit, however, over-cutting means that the flowers don't get a chance to form and any fruit that does ripen is often cut away before it can be eaten. The old style of hedgerow management involved a three year rotation, which was ideal for promoting strong growth with plenty of flowers and fruit.

Woodland patches: Like the hedgerows, woodland patches are of huge value locally to biodiversity providing a safe refuge from disturbance for resting and roosting. With a little management, they can become very diverse, hosting many different species. This management often involves the clearance of common invasives such as Cherry laurel and Old man's beard. Ivy and brambles are native parts of woodland and both are of great food value to wildlife.

Ardclough Biodiversity Action Plan 2023-28

Biodiversity Sites of Interest in the Area



Legend

- Biodiversity Sites of Interest
- Selected Community Site
- Natural Heritage Area (NHA)



Ardclough Biodiversity Action Plan 2023-28

Recent Progress

The following are just some examples of actions taken in recent years to increase biodiversity in the community:

Tree Planting

The community has carried out several tree planting projects recently. In the 2022-23 planting season trees were planted on a range of sites including:

- Over 600 trees in total were planted on a local farm as a woodland shelterbelt. Species included Oak, Birch, Hawthorn, Rowan, Spindle, and Scot's Pine.
- 100 hedging trees, including Beech, Hazel, Whitethorn, Spindle, and Willow, were planted into a farmland hedgerow.
- 50 native trees were planted on the grass verge on the road to Straffan, just before the school.

Communication

The community has always placed an emphasis on raising awareness of local biodiversity. Signs have been installed at various locations describing some of the wildlife present in the area. Work has been ongoing, bringing more local groups and members of the community on board for this Biodiversity Action Plan. Stronger links have been forged with the local school and the village centre, amongst others.

The community has also developed several online resources to raise awareness of biodiversity:

- bio.ardclough@gmail.com
- www.bioardclough.ie
- <https://www.facebook.com/BioArdclough>
- <https://www.instagram.com/BioArdclough/>
- twitter.com/BioArdclough



Potential actions to improve communications around the Plan have been identified; newsletter write-ups, a webpage on the local community site, and other opportunities to raise awareness are currently being considered.


Citizen Science Work

Ardclough is lucky to have some keen Citizen Scientists, who have helped record some of the wildlife in the area. For example, Adrian Meaney has meticulously kept a bird species list for years and has detailed records for other biodiversity from the locality.

In addition, there are several locals with a keen interest in the local wildlife and in recent years have noted animals such as barn owls, yellowhammers and pine martens nesting locally, to name just a few. This has led to collaborative work with local environmental charities such as BirdWatch Ireland who have installed a barn owl box.

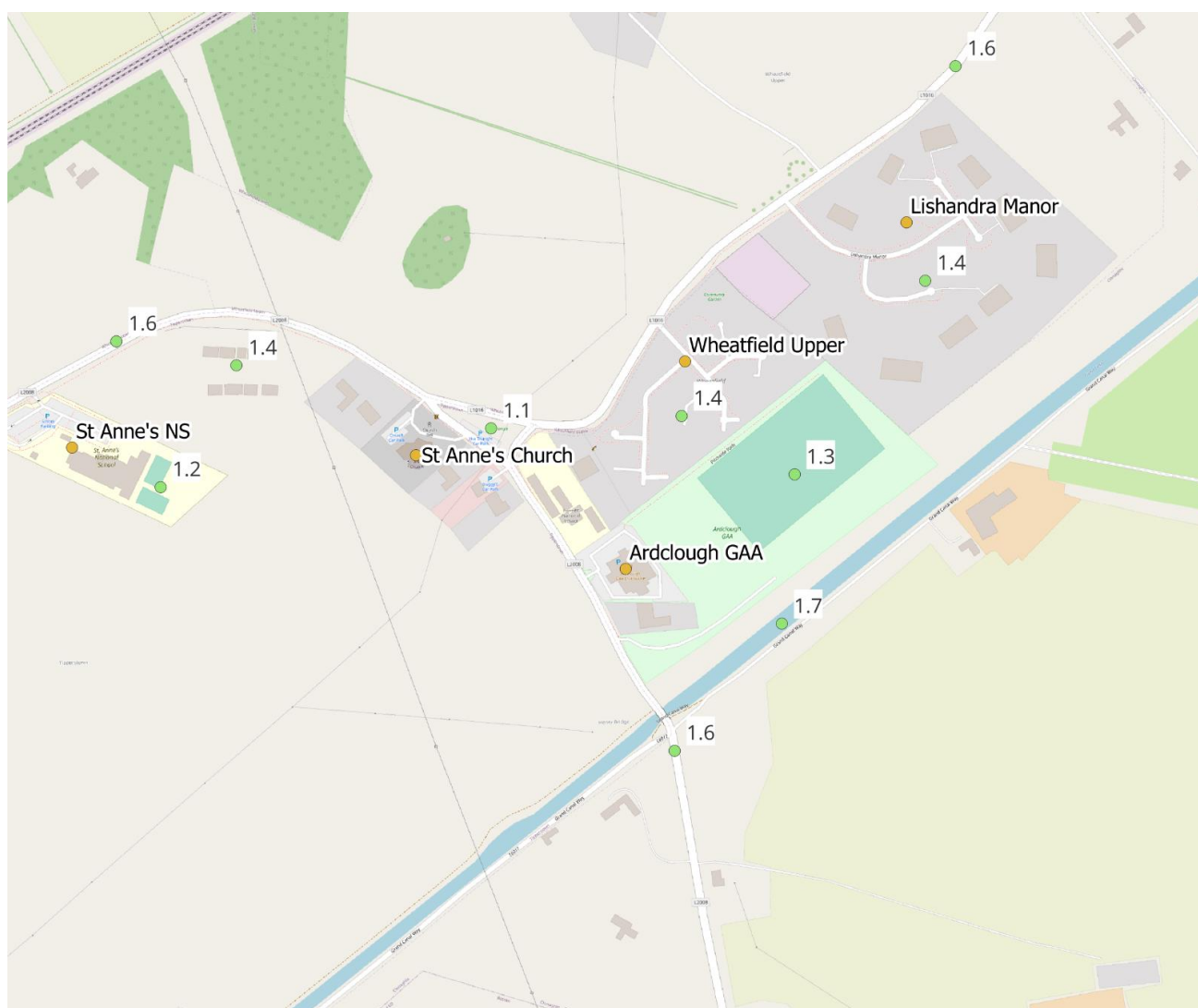
Section 3: A Call to Action

This is a shared plan of action for Ardclough community to build on recent progress and help increase biodiversity in the area. The plan has five objectives, each with specific targets and actions to help achieve them. Actions proposed

to be delivered in partnership with the Kildare LBAP Network are highlighted with the icon .

Objective 1	Make room for biodiversity in Ardclough
Objective 2	Controlling Invasive Alien Species
Objective 3	Move towards the elimination of pesticide use in the local area
Objective 4	Raising awareness of biodiversity
Objective 5	Citizen Science: Collecting evidence to track change and measure success

Site Specific Biodiversity Targets



Legend

-  Selected Community Site
-  Target Numbers



Objective 1: Make room for biodiversity in Ardclough

This objective aims to deliver practical benefits on the ground to help increase biodiversity in Ardclough. Twelve targets have been identified to deliver this objective. These are spread across a range of public and private spaces to where nature can be better accommodated.

Why:

- This Objective aims to conserve and increase habitats and native species in the village and surrounding landscape that will support biodiversity. This includes the conservation of existing and / or creation of new ecological corridors for species to move easily from one area to another.
- To deliver benefits for the wider environment e.g., carbon sequestration, improve soil processes and condition, improve air and water quality, etc.
- To make the village of Ardclough a greener, more attractive place to live, visit, and do business.
- To create opportunities for people of all ages to experience the natural world in their everyday lives and foster a greater appreciation of it.
- Deliver on the aims and objectives of local and national policies e.g. National Biodiversity Action Plan, All-Ireland Pollinator Plan, etc.

Target 1.1	Make more room for biodiversity in the centre of Ardclough
Target 1.2	Develop the grounds of St Anne's Primary School as a space that is good for outdoor learning and biodiversity
Target 1.3	Make more room for biodiversity on the grounds of Ardclough GAA
Target 1.4	Make more room for biodiversity in the existing residential estates
Target 1.5	Work with garden owners to take actions for biodiversity
Target 1.6	Manage the approach roads with biodiversity in mind
Target 1.7	Manage the canal corridor with biodiversity in mind
Target 1.8	Protect and strengthen existing features of biodiversity importance and links between them
Target 1.9	Use farm green infrastructure to make the surrounding farms more sustainable and increase biodiversity
Target 1.10	Continue conservation actions for barn owls and bats
Target 1.11	Mitigate against the potential impacts of Ash Dieback
Target 1.12	Ensure new community planting projects are carried out in a sustainable manner



Ardclough Biodiversity Action Plan 2023-28

Target 1.1: Make more room for biodiversity in the centre of Ardclough

Biodiversity Loss Drivers Addressed: 1, 2, 7

No.	Action
1.1.1	<p>Increase biodiversity in the 'Triangle' by:</p> <ul style="list-style-type: none"> • Manage the lawn as shortcut meadow - maintain the perimeter fringe as mown grass (Appendix 1). • Refreshing the shrub bed opposite Buggy's Shop by replacing some of the larger shrubs with a mix of pollinator friendly herbaceous perennials. • Replacing the pots with annual flowers at the base of the stone monument with a small, raised flowerbed. Use pollinator friendly herbaceous perennials. • Infill planting in the flowerbed on the school side using pollinator friendly herbaceous perennials.
1.1.2	<p>Manage selected parts of the lawn in St Anne's Church as meadow (shortcut or hay meadow). Pollinator friendly spring bulbs (e.g. Snowdrops, Crocuses, Grape Hyacinths) could be planted in the lawns.</p>
1.1.3	<p>Consider natural play options for the proposed community playground. See Info Box overleaf.</p>

Photo Board



The 'Triangle' lawn could be managed as a shortcut meadow and the pots replaced around the stone monument



The large shrub bed could be refreshed with pollinator friendly planting

Info Box: Natural Play

Natural play spaces are designed to adapt to the particular place where they are implemented. They provide a space and setting of play rather than an over-emphasis on equipment for children to play with. There is an emphasis on the use of natural features to create play and learning opportunities. It can be as simple as meandering paths in wildflower meadows, mounds that kids can run over, boulders or trees for climbing, etc. Natural play spaces incorporate an element of risk to replicate natural experiences and encourage contact with nature. They create more stimulating play for children, are usually less costly to install and maintain, it looks better, and it creates space for biodiversity.



Ardclough Biodiversity Action Plan 2023-28

Target 1.2: Develop the grounds of St Anne's Primary School as a space that is good for outdoor learning and biodiversity

Biodiversity Loss Drivers Addressed: 1, 2, 7

No.	Action
1.2.1	Create different outdoor classroom spaces / gardens around the school building on the green spaces not used for recreational purposes. This could include GIY gardens, rain gardens, wildlife gardens, and a seated outdoor classroom area.
1.2.2	Plant native hedgerows along open boundaries including around the playing field.
1.2.3	If established, then link in with the Green School committee to develop and implement the plans.
1.2.4	Consider replacing excess hard standing in the car park with green infrastructure features e.g. rain gardens and tree planting.

Target 1.3: Make more room for biodiversity on the grounds of Ardclough GAA

Biodiversity Loss Drivers Addressed: 1, 2, 7

No.	Action
1.3.1	Plant a native hedge along the boundary fence with Wheatfield Upper.
1.3.2	Install Swift boxes and a caller on the northern or western facade of the clubhouse. The booklet by BirdWatch Ireland has lots of information about how best to carry this out: https://birdwatchireland.ie/publications/saving-swifts-guide/
1.3.3	Participate in the GAA's new Green Club Programme aimed at making clubs more sustainable and biodiversity friendly: https://www.gaa.ie/my-gaa/community-and-health/green-clubs-sustainability/

Target 1.4: Make more room for biodiversity in the residential estates

Biodiversity Loss Drivers Addressed: 1, 2, 5, 7

No.	Action
1.4.1	Manage selected part(s) of the common green areas as meadow, either shortcut or hay meadow. These should be targeted at the areas not used for recreation. For larger meadows, incorporate mown paths to allow residents to access the meadow. See Appendix 1 .
1.4.2	Manage the trees in the common green spaces, including the area around the base of them, using environmentally sensitive methods. This can be achieved by: <ul style="list-style-type: none"> • Eliminating herbicide for the control of vegetation (where this is the current practice). • Use leaf litter to mulch around the base of trees each autumn. Strimmers and ride-on-mowers should not be used against the base of trees as they can kill or weaken them. • As much as possible avoid planting trees as individuals, instead plant trees in small groups and manage the vegetation underneath less intensively. • Monitor any tree ties and stakes used on planted trees on an annual basis. Adjust as necessary and remove once the trees can stand unsupported without bending or shifting in the ground (typically 1.5-3 years depending on the size of the tree at planting).
1.4.3	Plant native hedgerows along unplanted estate boundaries. For example, in Wheatfield Upper the boundary with the GAA club could be planted to benefit the residents and the GAA club.
1.4.4	Where space allows consider planting native trees in small groups and / or traditional Irish heritage fruit trees. See Appendix 3 .

Ardclough Biodiversity Action Plan 2023-28


1.4.5	In existing flowerbeds and containers use pollinator friendly herbaceous perennials to infill any gaps and to replace annual bedding plants where these are used. Where possible engage keen local gardeners to source the plants and use this as an opportunity for a community event on plant propagation. See Appendix 2 .
1.4.6	Manage hardstanding areas (paths, roads, and car parking areas) and around site infrastructure in lawn areas (e.g. manhole covers, road signs, utility boxes, etc.) in a environmentally sensitive way: <ul style="list-style-type: none"> • Use non-herbicidal methods for weed control such as mechanical sweepers. • Strim around site infrastructure located in lawns rather than using herbicide. • Collect fallen leaves on hard standing areas for reuse as mulch around trees and in flowerbeds. • Where possible create swales and rain gardens to manage rainwater runoff.
1.4.7	Consider incorporating natural play and learning opportunities into common green areas. This can be done simply by maintaining paths through any new meadows, tree planting, and other ‘wild areas’, and by incorporating other natural features that promotes play (e.g. fallen tree logs, boulders, mounding, etc.) cleverly within these new natural spaces in the estate.
1.4.8	Encourage residents to take actions in their gardens to increase biodiversity (see Target 1.5).
1.4.9 	Engage with Kildare County Council through the Kildare LBAP Network to ensure that any future residential developments are designed with green infrastructure principles in mind. This should include the protection of existing biodiversity features or ecological corridors of importance on the site, and the development of new green spaces and features that deliver multiple environmental and social benefits e.g. vegetated bioswales and / or rain gardens in the common green spaces can minimise rainwater runoff from the site.

Photo Board



The gaps in the existing flowerbeds could be planted with a variety of pollinator friendly herbaceous plants



The southern boundary of Wheatfield Upper with the GAA club could be planted with a native hedgerow



The common green areas in estates are an opportunity for meadows and tree planting




Grass verges outside the estates could be managed as shortcut meadows

Ardclough Biodiversity Action Plan 2023-28



Target 1.5: Work with garden owners to take actions for biodiversity

Biodiversity Loss Drivers Addressed: 1, 2, 7

No.	Action
1.5.1 	<p>Engage with the Kildare LBAP Network to develop a media campaign to encourage private garden owners to make space for biodiversity in their gardens. The following are some ideas for them to consider:</p> <ul style="list-style-type: none"> • Eliminate the use of herbicides • Leave corners / pockets of the garden to be managed less intensively • Manage part(s) of the lawn less intensively • Erect and maintain bird boxes and baths (these require regular maintenance) • Use native shrubs and trees as much as possible and avoid using invasive species • Construct a wildlife pond • Use pollinator friendly plants in flowerbeds and containers - where possible work with other keen local gardeners to source / share suitable plants from splitting / cuttings • Compost green waste and reuse once ready in garden beds as mulch • Manage rainwater runoff from roofs and hardstanding areas e.g. harvest rainwater for reuse in the home / garden and / or create rain gardens <p>The 'Biodiversity for Gardening' booklet has lots more ideas and tips: https://laois.ie/wp-content/uploads/Garden-Wildlife-Booklet-WEB-17MB.pdf</p>
1.5.2	<p>Run a 'Free Garden Tree Giveaway' during the bare root planting season (late Nov – early March). Suitable trees include (use trees of Irish provenance and origin only): Rowan, Birch, Hazel, Hawthorn, Crab Apple, and Wild Cherry. Other native shrubs such as Guelder Rose, Spindle, Holly, etc. could be used.</p>

Target 1.6: Manage the approach roads with biodiversity in mind

Biodiversity Loss Drivers Addressed: 1, 2, 7

No.	Action
1.6.1 	<p>Engage with Kildare County Council through the Kildare LBAP Network to implement less intensive grass cutting regimes on suitable roadside verges on the approach roads - a grass verge management plan for the village that identifies the timing and frequency of cuts for the different verges should be developed and implemented in partnership with Kildare County Council. Suitable verges include the wider verges and verges that won't interfere with road safety or sightlines if managed as meadow. See Appendix 1.</p>
1.6.2	<p>Strengthen hedgerows on approach roads as needed. This could include:</p> <ul style="list-style-type: none"> • Where there are large gaps / breaks in hedgerows engage with the landowners about planting them with native trees • Where Ash is the dominant tree species then engage with the landowner about planting other native trees to increase diversity • Raise awareness of proper hedgerow management and timing among landowners / land managers in the community (see Appendix 3).
1.6.3 	<p>Engage with Kildare County Council through the Kildare LBAP Network to ensure herbicides are not used to control vegetation on roadside verges, stone walls, or other roadside infrastructure. See Objective 3.</p>

See Photo Board overleaf.

Ardclough Biodiversity Action Plan 2023-28

Photo Board



Grass verge outside the new housing estate that could be managed as a shortcut or hay meadow



Grass verges at the base of the stone walls beside the canal could be managed less intensively



Wide grass verge opposite the new housing estate



Wide grass verge opposite the new housing estate



Verge and hedgerow in the village centre






Grass verge outside Wheatfield Upper

Ardclough Biodiversity Action Plan 2023-28

Target 1.7: Manage the canal corridor with biodiversity in mind

Biodiversity Loss Drivers Addressed: 1, 2, 4, 7


No.	Action
1.7.1 	Engage with Waterways Ireland and Kildare County Council through the Kildare LBAP Network about less intensive grass cutting regime on the canal side grass verges. See Appendix 1 .
1.7.2	<p>Seek to protect hedgerows, treelines, and woodlands adjacent to the canal. Where there are future developments or land use changes planned then these features should be protected and incorporated sensitively into the plans.</p> <p>The first step is to survey and map all these areas and develop site specific management recommendations. This action ties in with Target 1.8.</p>
1.7.3	Organise bankside clean ups and litter picks.
1.7.4	<p>Consult with the NPWS and Waterways Ireland prior to undertaking any actions (other than litter picking) adjacent to the canal to ensure they are in compliance with all Water Framework Directive and Habitats Directive Legislation requirements.</p> <p>See the Waterways Ireland publication '<i>Waterways and Biodiversity A Guide for Community Groups</i>'* which has many good ideas on supporting nature along the canal.</p>
1.7.5 	Engage through the Kildare LBAP Network with the different statutory organisations to ensure herbicide is not used adjacent to the canal. See Objective 3.
1.7.6 	Explore the potential to get a local canal conservation management plan carried out. This could be delivered through a programme of community canal management plans through the Kildare LBAP Network . This should include a survey of the canal at Ardclough and recommendations for actions and management.

*Link to the document:



<https://www.waterwaysireland.org/Documents/Heritage%20+%20Environment/Waterways%20and%20Biodiversity%20A%20Guide%20for%20Community%20Groups.pdf>

Target 1.8: Protect and strengthen existing features of biodiversity importance and links between them

Biodiversity Loss Drivers Addressed: 1, 2, 5, 7

No.	Action
1.8.1 	<p>Conserve and build upon the existing green infrastructure or biodiversity features of importance in the community and the network of ecological corridors in the landscape. Some of these features and corridors in Ardclough include farm hedgerows; wide treelines; woodlands; the canal (see Target 1.7); the old stone walls, buildings and bridges; meadows; and the ponds that have filled the old quarries.</p> <p>As a first step, these important features and corridors should be surveyed and mapped and that the conservation of them built into local area plans and any future developments. These plans could be coordinated through the Kildare LBAP Network to ensure the linkage of countywide ecological corridors in urban and rural landscapes. Local knowledge helping to inform decisions being made and implemented for your locality can be crucial.</p>

Ardclough Biodiversity Action Plan 2023-28

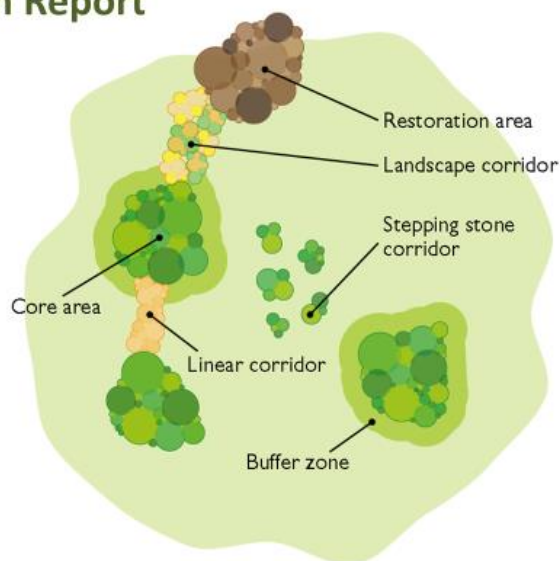
1.8.2	Where gaps have been identified between natural sites in the landscape take steps to connect them. For example, if there is a break between hedgerows or areas of woodland in the landscape then engage with the landowner(s) in between to see if they would allow new hedging or tree planting to connect them.
1.8.3 	Promote through the Kildare LBAP Network the better management of hedgerows and trees with the land managers and contractors. Attention should be given to the best timing and to the proper cutting / trimming of them to promote biodiversity. See Appendix 3 and https://www.farmingfornature.ie/resources/best-practice-guides/hedgerow-management/ .
1.8.4 	Work with neighbouring communities through the Kildare LBAP Network to create new, and strengthen existing, ecological corridors. Several of the neighbouring communities are also participating in the biodiversity training and production of biodiversity action plans.

Info Box: The Lawton Report – Making Space for Nature

This action is adapted from *Making Space for Nature: A review of England's Wildlife Sites and Ecological Network* (2010). It concluded 'that England's collection of wildlife sites is generally too small and too isolated' and that 'we need a step-change in our approach to wildlife conservation, from trying to hang on to what we have, to one of large-scale habitat restoration and recreation'. The report coined the phrase: our wildlife sites need to be 'better, bigger, more and joined up'. The report, and its findings and recommendations, can be applied to our current situation here in Ireland.

The Lawton Report

- Bigger
- Better
- Connected



Making Space for Nature: a review of England's wildlife sites and ecological networks: defra 2010

Main Findings of Lawton Report

- Many wildlife sites are too small
- Losses of certain habitats have been so great that insufficient remains to halt additional biodiversity losses
- With the exception of Natura 2000 sites and sites such as NHAs, most of semi-natural habitats important for wildlife are generally insufficiently protected and under-managed
- Many of the natural connections in our countryside have been degraded or lost, leading to isolation of sites
- Climate change will make matters worse for many habitats and species

Proposed Solutions/Actions "MORE, BIGGER, BETTER AND JOINED"

- Improve the quality of current sites by better habitat management (and enhance heterogeneity)
- Increase the size of current wildlife sites
- Create new sites
- Enhance connections between, or join up, sites, either through physical corridors, or through 'stepping stones'
- Reduce the pressures on wildlife by improving the wider environment, including through buffering wildlife sites
- Better management of existing sites > Bigger sites > More sites > Enhance connectivity > New corridors
- The impacts of climate change mean that these actions will be even more important in the future

Target 1.9: Use farm green infrastructure to make the surrounding farms more sustainable and increase biodiversity

Biodiversity Loss Drivers Addressed: 1, 2, 5, 7

No.	Action
1.9.1	Develop and implement a detailed farm woodland masterplan for the interested landowners along the canal at Ardclough. This will include farmers, smallholders, and homeowners with large gardens. This will require the services of an ecologist with an understanding of the needs of farmers and agricultural systems. Continue to encourage other farmers and smallholders in the area to join the project.
1.9.2	<p>Cultivate a relationship to further biodiversity with UCD Lyons Estate and Private Lyons Estate. UCD has an Institution Wide Biodiversity Strategy which could be leveraged to support community actions.</p> <p>Part of this could be around the existing woodlands and ensuring they are managed in a sustainable way and with biodiversity in mind. It could include introducing the idea of Continuous Cover Forestry, a commercial forestry management regime for which biodiversity and sustainable environmental practices are integral part - www.prosilvaireland.com</p>
1.9.3	<p>Encourage other farmers and smallholders not involved in the farm masterplan in Action 1.9.1 to take practical steps to increase farm biodiversity. Some ideas include:</p> <ul style="list-style-type: none"> • Manage and retain existing farm tree cover including hedgerows and individual trees. • Plant new native hedgerows. This includes increasing native tree diversity in hedgerows. • Increase tree cover including small pockets of trees in corners of fields and other unused farmland, and / or other agroforestry systems through fields. • Protect any riparian corridors through setbacks and appropriate tree planting. • Set up 'Hare's corners' in small pockets around the farm. See Info Box below. • Undertake soil analysis (support available from Teagasc) and test and monitor soil organic matter levels
1.9.4	<p>Liaise with the Kildare LBAP Network to participate in, and / or promote training workshops and events for local farmers and smallholders on sustainable farming methods that will also increase farm biodiversity. This can include talks aimed at increasing farm tree cover / agroforestry systems, improving farm soil health, nutrient management, organic farming, etc.</p>

Info Box: The Hare's Corner, an old Irish farming tradition

The Hare's Corner is an age-old tradition in Ireland where small areas are left for nature around a farm. People knew that wildlife needed spots free from human intervention - clearing and tidying. The concept has been taken on and expanded in Co. Clare by the Burrenbeo Trust where they are encouraging farmers to consider small projects such as pocket woodlands, mini orchards, small ponds and green sheds for corners of their farms (<https://burrenbeo.com/thc/>).

Such small areas can be of huge value for biodiversity on busy farms where the intensification of agriculture over recent decades has left little room for nature. Returning to this tradition of our forebears and spreading the idea to other counties in Ireland has the capacity to slowly but surely increase the space for nature that the Biodiversity Crisis so badly needs.



Ardclough Biodiversity Action Plan 2023-28

Target 1.10: Continue conservation actions for barn owls and bats

Biodiversity Loss Drivers Addressed: 1, 2, 7

No.	Action
1.10.1	Barn Owls: Continue to work with BirdWatch Ireland in relation to the local barn owl population and the barn owl box project in place.
1.10.2	Bats: Install bat boxes along the canal at selected locations. This can be done as part of a community bat walk and talk. This should be carried out with the support of a suitably qualified ecologist.

Target 1.11: Mitigate against the potential impact of Ash Dieback

Biodiversity Loss Drivers Addressed: 1, 2, 3



No.	Action
1.11.1 Ⓢ Ⓢ-Ⓢ	Liaise with the Kildare LBAP Network to promote the planting of other suitable native tree species into hedgerows in the urban and rural landscape where Ash is overly dominant. Any planting in sensitive habitats should only be carried out with the advice of an ecologist.
1.11.2	Record any Ash trees showing resistance to the disease to Teagasc. These trees may act as a source of disease resistant trees in the future. Teagasc are actively working on this project: https://www.teagasc.ie/news--events/news/2022/managing-ash-dieback.php
1.11.3	Where possible, for mature Ash trees of important biodiversity / aesthetic value in the community, collect, remove, and destroy Ash leaf litter in autumn from under the tree. This is currently the only effective option to reduce spread of the disease as it disrupts the fungus's life cycle and thereby reduces spore production the following summer.

See **Appendix 4** for further detail on Ash Dieback (*Hymenoscyphus fraxineus*).

Ardclough Biodiversity Action Plan 2023-28

Target 1.12: Ensure new community planting and meadow projects are carried out in a sustainable manner

Biodiversity Loss Drivers Addressed: 1, 2, 3, 4, 5

No.	Action
1.12.1	Use native trees for new community woodlands and hedgerows. These should be of Irish origin and provenance i.e. seeds of native Irish species sourced, sown and grown in Ireland.
1.12.2	Do not plant trees, wildflower seed, or ornamental plants in places where they will have a negative impact on special or protected habitats and landscapes and resident flora and fauna. You must not plant on unenclosed land, moorland, wetland, heathland, bog or unimproved or minimally improved pasture or old meadow that has never been ploughed. Similarly, you must not plant on land falling within an SAC, SPA, NHA or any other designation without prior approval from the NPWS or other relevant body.
1.12.3	For the creation and upkeep of flowerbeds in the community: <ul style="list-style-type: none"> • Where possible, use locally sourced propagated plants within the community • For any new purchased garden centre plants aim to use plants grown organically • Use pollinator friendly perennials and not annual bedding • Use peat free compost for any pots / containers in the community • Keep community flowerbeds, containers and ornamental plants to key selected sites in the community - they are not suitable in the countryside or in any natural habitats or landscapes.
1.12.4	To create new meadows on existing grassland simply manage the grassland accordingly (see Appendix 1). Do not sow with wildflower seed mixes (see Action 4.1.5).
1.12.5 	Engage with Kildare County Council and other community groups through the Kildare LBAP Network to explore options for the efficient and sustainable management of meadows. This includes exploring options for cutting the meadows, and the removal and disposal of grass cuttings created. Consideration should be given to organising the management of the different community meadows collectively (including residential areas, sports clubs, schools, parks, etc.) rather than individually both within the village and between neighbouring towns / villages.
1.12.6 	Engage with Kildare County Council through the Kildare LBAP Network about the potential for them to set up a nursery to grow native trees (sourced from known trees and woodlands of local genetic origin), hedging, and horticultural plants for use in flowerbeds in the village and around the county.

Objective 2: Controlling Invasive Alien Species

This objective aims to help control the spread of invasive alien species in the community on both public and private lands. They are defined by Invasives.ie as *animals, plants or pathogens that would not naturally occur in Ireland but are here because of human activity. When introduced, they survive and thrive to the point of negatively impacting on our wildlife, on the services nature provides, on our economy, and the way we live.* <https://invasives.ie/>

Why:







- Invasive species are one of the main drivers of biodiversity loss both globally and here in Ireland. It is important for all communities to understand the problem and take steps to tackle it.
- As well as contributing to native biodiversity loss, invasive species have other negative impacts for our society. Some have negative human health impacts (e.g. Giant Hogweed) while others can cause damage in their receiving environment (e.g. Himalayan Balsam can lead to riverbank erosion and Japanese knotweed can damage built infrastructure). Control measures for different invasives, once they have become established, can be expensive and time consuming to carry out.
- In Ardclough the use of the canal for leisure and recreation can pose a threat of the introduction of invasive species. Therefore, it is important to follow national guidelines for aquatic recreational users (Check, Clean, Dry – See Appendix 9).
- Carrying out surveys will identify the extent of the problem and guide targeted control measures.
- Taking a landscape scale approach to tackling the problem will help identify the sources of the problem species, which can often be outside the community area, but which have the potential to infest / reinfest in the future if not tackled.
- Many invasive plant species are still available for purchase and are widely used in new planting schemes. This exacerbates the problem by spreading them to new areas – native and non-invasive alternatives are available and should be used.
- Tackling invasive species will help deliver on the aims and objectives of local and national policies e.g. National Biodiversity Action Plan, etc.

Target 2.1 Take measures to control Invasive Alien Species in the community



Ardclough Biodiversity Action Plan 2023-28

Target 2.1: Take measures to control invasive alien species in the community Biodiversity Loss Drivers Addressed: 1, 2, 3

No.	Action
2.1.1 	Liaise with Kildare LBAP Network to advocate to Kildare County Council for a strategic plan at county level for invasive species control. Example: Dún Laoghaire-Rathdown County Council have developed a roadmap for their council area to control invasive species: https://www.dlrcoco.ie/sites/default/files/atoms/files/dlr_ias_action_plan_lr.pdf
2.1.2 	Liaise with Kildare LBAP Network to get an invasives survey produced for the village and surrounding landscape and develop and implement management plans for recorded species. The scope of the survey should be set by the community and the most immediate threats (local knowledge is very important). Note: it is important to survey potential corridors in the surrounding landscape which invasive species may travel e.g. rivers, roadsides, etc. Control measures taken in the community maybe unsuccessful if the source of the problem is elsewhere and it isn't addressed.
2.1.3 	Liaise with Kildare LBAP Network to engage with Kildare County Council to train members of staff in the local authority (grounds staff and relevant officers), local employment schemes, and the Tidy Towns how to identify common invasive species. See Appendix 7 for a list of some of the common terrestrial plant species recorded in the area. It is also important to remain vigilant for any new invasive species that could potentially establish in the area and report them to the local NPWS staff and / or Kildare County Council.
2.1.4 	Engage with Kildare LBAP Network to develop a countywide campaign to raise awareness about invasive species including alternative plant species that are better for biodiversity e.g., alternatives to Cherry Laurel. This can be done by arranging talks, workshops, posting on social media, and by setting examples by removing them from public sites and not using them in new planting schemes.
2.1.5 	Engage with Kildare LBAP Network to work with local market suppliers & garden centres to promote native and non-invasive species over invasive plants.
2.1.6 	Engage with Kildare LBAP Network to work with Kildare County Council and other state landowners to adopt a ban on the use of invasive plant species in new planting schemes on public lands and community spaces.
2.1.7	Use trees of Irish provenance and origin rather than imported stock for hedgerows and woodland planting i.e. seeds of native Irish species sourced, sown and grown in Ireland.

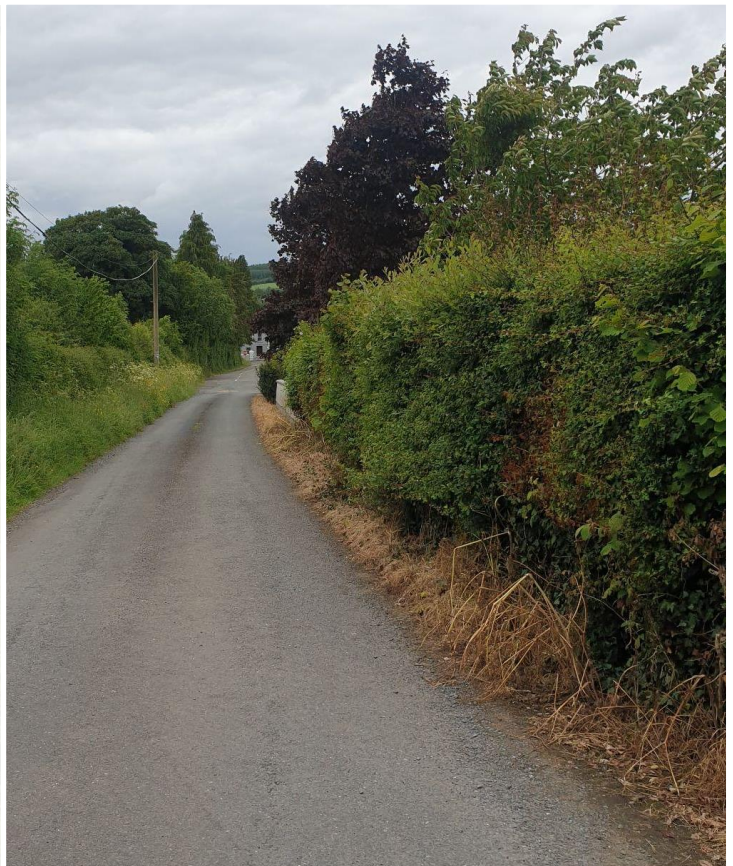
Objective 3: Move towards the elimination of pesticide use in the local area

This objective aims to move the community towards a pesticide free environment. One target with three actions has been identified to help start moving away from pesticide use in the community.

Why:


- Pesticides, including herbicides and rodenticides, have negative implications for biodiversity, the environment, and human health. If they get into waterways such as drains, streams, rivers, canals, and lakes, it can impair their water quality and lead to negative impacts on aquatic life and any potential human use.
- Herbicide and other pesticides can also negatively impact the biological component of soils, crucial for producing food.
- Deliver on the aims and objectives of local and national policies e.g. National Biodiversity Action Plan, All-Ireland Pollinator Plan, etc.

Target 3.1 Move towards the elimination of pesticide use in the local area



Target 3.1: Move towards the elimination of pesticide use in the local area

Biodiversity Loss Drivers Addressed: 1, 2, 4

No.	Action
3.1.1 	<p>Liaise with Kildare LBAP Network to move towards the elimination of pesticides, including herbicide and rodenticide, use in the public spaces. This should begin with a review of current use, with the immediate aim of eliminating its use near sensitive habitats (e.g. rivers and drains), and its use on sites used by children or of public health concern (e.g. schools, playgrounds, etc.). This should then extend to all other public areas as soon as possible thereafter.</p> <p>The Pesticide Action Network are a UK charity focused solely on tackling the problems caused by pesticides and promoting safe and sustainable alternatives in agriculture, urban areas, homes and gardens and we reference their pesticide free towns campaign here. https://www.pan-uk.org/</p> <p>What are the alternatives to using herbicides/pesticides in our urban spaces?</p> <p>There are a range of different approaches available to councils and other land managers that decide to stop using pesticides. The effectiveness of each method will vary greatly depending on the local context and environment and, in most cases, a suite of different approaches will be required to replace pesticides.</p> <p>Raising public awareness is absolutely key to the success of going herbicide-free. Councils and other land managers must ensure they communicate their plan of action, and their reasons for change, to the public. If local residents understand the health and environmental benefits they are much more likely to support the initiative and accept a higher level of ‘weediness’. It is also possible to get local volunteers to help with jobs such as hand weeding.</p> <p>Alternative approaches for weed control are described in the Info Box on pesticides overleaf.</p>
3.1.2	Encourage private landowners to go pesticide free on their lands. This can be communicated through a combination of local media and word-of-mouth.
3.1.3	Engage with the public, land managers, and landowners in the community to tackle the cultural perception of what is considered to be ‘tidy’ and ‘untidy’, and learning to accept and appreciate the vital role that these plants that are considered as ‘weeds’ play in a healthy environment.

Info Box: Herbicide/Pesticide

Did you know that chemically all herbicides are actually pesticides? Therefore, they will also harm animals as well as plants – and that includes us humans! Pesticide includes, herbicide, insecticide, nematocide, molluscicide, piscicide, avicide, rodenticide, bactericide, insect repellent, animal repellent, microbicide and fungicide.

Did you know that a single drop of herbicide/pesticide is enough to breach the drinking water limit in a small stream for up to 30km of its length! Yet people will spray many, many drops of herbicide into their local environment in their gardens or along ditches adjacent to their homes, schools or playing fields – probably oblivious to the harm they are causing. We need to think about what we are happy to put into our natural environment as our knowledge of biodiversity tells us that we humans are an intricate part of biodiversity too. We are, therefore, also affected by abuses of our environment as climate change consequences worldwide are now teaching us.

Alternative thinking: As with nearly all things in life, pesticides have their uses – especially in the eradication of invasive alien plant species which are damaging Irish biodiversity through habitat destruction daily. However, weeds are a subjective matter – a dandelion is not a weed to a bumblebee but the best source of food and sustenance when you've just woken up starving from your winter hibernation! So, the first thought always needs to be: is that plant really a weed? Is it really bothering me? Is it causing problems to anyone or anything?

Alternatives to herbicide/pesticide use:

- To do nothing or do less: this involves recognising that herbicide has been overused and used unnecessarily
- Hot foam systems, like hot water systems, kill plants using heat, but can be used in all weather conditions. This gives them a major advantage over chemical herbicides which can only be sprayed under ideal weather conditions.
- Hand weeding is an option particularly for smaller areas such as playgrounds and on paths running through parks. Use physical methods: this is the age-old method of physically pulling up, snipping or hoeing out plants that are in the wrong place. Plants need their leaves to photosynthesise (i.e. make their own food), therefore if their leaves are continually removed they will not survive. This should only apply to making paving safer for pedestrians or clearing formal flower or vegetable beds. We need to change our mindset about what really is a weed in other situations!
- Acetic acid (vinegar) dilutions have been used very effectively to control weeds on hard surfaces in a variety of situations. Acetic acid is biodegradable and poses no risk of bioaccumulation.
- Other types of manual approaches are available in the form of differing types of mulching. This is a particularly useful approach in ornamental beds and in parks.
- Steel brushing can be used for large scale areas such as pavements and roads and in combination with the use of acetic acid spraying can be a very effective alternative.
- High pressure hot water treatments can be particularly effective and also have other uses such as chewing gum removal.
- Electronic control systems that kill stems and roots instantly and are particularly suited to dealing with invasive species are also available.
- Using new technologies: e.g. hot foam machines etc. These are often costly and may be out of the reach of most small communities but they can still be discussed with local authorities and large landowners.

In the event that herbicide/pesticide use is deemed necessary e.g. by contractors working in your locality then the Department of Agriculture guidelines re. responsible use of pesticides in public areas must be followed. The Department has produced a very helpful leaflet entitled 'Straight a's for Amenity' and it is available to download at: <https://www.pcs.agriculture.gov.ie/media/pesticides/content/sud/ResponsiblePesticideUsePublicAmenityGardenAr eas200217.pdf>

Objective 4: Raising awareness of biodiversity

This objective aims to raise awareness of biodiversity in the wider community. Five targets have been identified including installing street furnishings and art, social media, and community events to achieve this objective.

Why:

- To create awareness and appreciation of biodiversity around us so that we can get the support and knowledge necessary to better protect and conserve it (these are the first two drivers identified by the IPBES Report outlined in Section 1). These drivers are often the precursor to the other main biodiversity loss drivers identified such as pollution, invasive species, habitat loss, etc.
- Raise awareness of and provide updates on local biodiversity projects so that local people understand what is going on and why. This may also be used to encourage people in the community to get involved with local community and residential groups who are active in conserving biodiversity in their area.
- To provide information to the public about actions they can take to increase biodiversity in their lives (e.g. in their gardens) or reduce their impact on biodiversity loss by making more sustainable lifestyle choices.
- The biodiversity themed trails, street art and signage, as part of the wider practical actions for biodiversity, can help make the village a more attractive place for people to live, visit, and do business.
- Deliver on the aims and objectives of local and national policies e.g. National Biodiversity Action Plan, All-Ireland Pollinator Plan, etc.




Target 4.1	Raise awareness of local biodiversity and biodiversity projects
Target 4.2	Develop a waymarked looped walk from the village to the canal
Target 4.3	Refresh and update biodiversity interpretation signage
Target 4.4	Work with the local authority on issues of biodiversity concern regarding new developments and future planning of the area
Target 4.5	Promote and support positive actions to encourage more sustainable lifestyles and individual choices



Ardclough Biodiversity Action Plan 2023-28

Target 4.1: Raise awareness of local biodiversity and biodiversity projects

Biodiversity Loss Drivers Addressed: 1, 2

No.	Action
4.1.1	Use different forms of local media to raise awareness and to reach out to the community about actions and issues relating to biodiversity in the community.
4.1.2	Raise awareness of the All-Ireland Pollinator Plan and its resources in the local community. Share links to the All-Ireland Pollinator Plan website including its resources and relevant content (https://pollinators.ie/). Also share their relevant resources guides directly with different sectors in the community e.g. schools, faith communities, sports clubs, gardens, etc.
4.1.3 	<p>Liaise with the Kildare LBAP Network to request, participate in, and / or promote biodiversity training talks and workshops over the course of this Plan. The exact topics requested will depend on the key messages that the community group(s) would like to convey and skills they want to pass to the community, and the areas of biodiversity interest of people in the community. Some ideas include:</p> <ul style="list-style-type: none"> • Biodiversity in the local area; including sites and species • Workshops on ‘gardening for biodiversity’ • Workshops for residential associations on how they can increase biodiversity in their estate • Wildlife identification events along the canal – bat walks and talks are great family events for the summer. Other event ideas include woodland walks and plant id workshops, dawn chorus, etc. <p>Tapping into other events: Nowadays wildlife charities are regularly running events for the public both online and in person. Any of these that are of relevance to the local community should be promoted.</p>
4.1.4 	Liaise with the Kildare LBAP Network to request, participate in, and / or promote nature-based activity events for children over the course of this Plan. Some ideas include: woodland camping; wildlife detective; mini beast hunts; pond dipping; woodwork and nature crafts; and nature art and walks.
4.1.5	Promote nature-based activities on local social media for people to carry out with their own children.
4.1.6	Encourage members of the community to get involved in the delivery of actions outlined in this Plan. Some of the suitable actions include tree planting, meadow management, planting and maintenance of flowerbeds and other planting schemes, litter picks along watercourses and other sensitive habitats, invasive species control (for certain species), installing habitat boxes, helping run biodiversity events and children’s nature-based activities, etc.
4.1.7	Raise awareness of local designated natural sites and protected biodiversity such as the canal. This can be done through posts on local social media and by hosting walks and talks (see Action 4.1.3) about the sites. Liaise with the local NPWS officer when organising events on the local designated sites.
4.1.8 	<p>Liaise with the Kildare LBAP Network to organise campaigns to raise awareness of issues of biodiversity concern. The following are some issues of concern (it is not intended to be an exhaustive list):</p> <ul style="list-style-type: none"> • The problem of introducing wildflower seed mixes to grasslands in the community. See: https://pollinators.ie/wildflower-seed/ • The threats to native bee species through the importation of honeybee and bumblebee colonies. The Native Irish Honey Bee Society is an established group with the aim to conserve the native Irish honeybee: https://nihbs.org/ • The importance of soil health and biodiversity and actions needed to improve it. • The impact of increased lighting in the landscape (e.g. on greenways, sports pitches, etc.) on wildlife such as bats and moths. Bat Conservation Ireland produced a guidance document on bats and lighting: https://www.batconservationireland.org/wp-content/uploads/2013/09/BCIrelandGuidelines_Lighting.pdf

Ardclough Biodiversity Action Plan 2023-28

Target 4.2: Develop a waymarked looped walk from the village to the canal

Biodiversity Loss Drivers Addressed: 1, 2

No.	Action
4.2.1	Explore the opportunity to develop a waymarked biodiversity trail / loop walk from village to canal. Any trail should include information on local biodiversity. As this would require some improvements on certain sections of roads / footpaths to make this safe then it would be worth connecting with local councillors and the local area engineer these needs. These contacts will be useful to highlight any other potential public realm plans that the community could feed into in so that biodiversity and important ecological networks are properly considered.





Target 4.3: Refresh and update the biodiversity interpretation signs

Biodiversity Loss Drivers Addressed: 1, 2

No.	Action
4.3.1	There are several good information signs in the community about local biodiversity and natural heritage sites of interest. However, the one at the 'Triangle' has weathered and will eventually need to be refreshed. This should be planned for, and when the time comes to carry this out the community should use it as an opportunity to update any new information related to the local biodiversity.

Target 4.4: Work with the Local Authority on issues of biodiversity concern regarding new developments and future planning of the area

Biodiversity Loss Drivers Addressed: 1, 2, 3, 5, 7

No.	Action
4.4.1 	Maintain awareness of proposed developments in the area and engage in the planning and development process for Ardclough, including adding observations on proposed developments. Also liaise with the Kildare LBAP Network to engage fully with the development of County and Local Development plans to ensure biodiversity is included in all plans and projects proposed for the Ardclough area as well as broader environmental planning and sustainable transport etc. This could include lobbying for the use of green infrastructure instead of grey infrastructure where possible e.g. in relation to sustainable drainage, and ecological connectivity in the wider landscape.
4.4.2 	Liaise with the Kildare LBAP Network to engage with Kildare County Council to ensure that all suitable new buildings should incorporate appropriate biodiversity habitat boxes and features e.g., Swift bricks and callers, bat boxes, etc.
4.4.3 	Liaise with the Kildare LBAP Network to engage with Kildare County Council to ensure the protection of existing biodiversity features or ecological corridors of importance on new development sites, and the development of new green spaces and features that complement them. See Target 1.8.
4.4.4 	Liaise with the Kildare LBAP Network to engage with with Kildare County Council to ensure that no known invasive species should be planted as part of any new developments. This includes Cherry Laurel which is commonly used for hedging. See Objective 2.

Info Box: Green Infrastructure in Community Spaces

The European Commission defines green infrastructure as a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services such as water purification, air quality, space for recreation and climate mitigation and adaptation. This network of green (land) and blue (water) spaces can improve environmental conditions and therefore citizens' health and quality of life. It also supports a green economy, creates job opportunities and enhances biodiversity.







1. Permeable driveways to help reduce flood risk	6. Bat roosts, bird boxes and other wildlife features designed into buildings	11. Native, wildlife-friendly plants of local origin used in gardens & landscaping
2. Trees, hedgerows, water and other habitats integrated with development	7 Renewable energy and water efficiency built in from the outset	12 Wildlife-permeable boundaries between gardens and open space
3. Wildflower verges along roads and formal open spaces	8. Safe, attractive, connected pedestrian and cycle routes	13. Allotments and community orchards for local food
4. Lighting designed to avoid disturbing wildlife	9. Features and corridors to help invertebrates, hedgehogs, and other mammals	14. Street trees for wildlife, shade and improved air quality
5. Sustainable urban drainage, swales and rain gardens for wildlife and flood relief	10. Wildlife friendly green roofs and walls	15. Interpretation panels to help people understand the needs of wildlife and the environment

Infographic Source: Wildlife Trusts <https://www.wildlifetrusts.org/news/new-guidelines-call-homes-people-and-wildlife>

Target 4.5: Promote and support positive actions to encourage more sustainable lifestyles and individual choices

Biodiversity Loss Drivers Addressed: 1, 2, 4, 5, 6

No.	Action
4.5.1 	<p>Liaise with the Kildare LBAP Network to promote and support initiatives that make Kildare communities, including Ardclough, more sustainable both now and as they develop in the future. Some ideas include:</p> <ul style="list-style-type: none"> • Make the village fully pedestrian and bicycle friendly to encourage less car use locally. • Promote more planting of edible plants throughout the village on public and private lands and the creation of more community managed edible gardens. • Explore the potential for Ardclough to become a sustainable energy community. See SEAI's Community Energy Project: https://www.seai.ie/community-energy/sustainable-energy-communities/start-an-energy-community/ • Manage rainwater sustainably in new developments. • Reduce Ardclough's waste by following the principle of '6 Rs': refusing, reducing, reusing, repairing, recycling, and rotting. Only after these six elements are exhausted should something be considered waste. <p>For further ideas and information on sustainability see Ecolise (the European network for community-led initiatives on climate change and sustainability): https://www.ecolise.eu/</p>
4.5.2 	As part of the Kildare LBAP Network , use Ardclough's collective voice of local community / residential groups, businesses, and individuals to advocate for better environmental and biodiversity protection at the local, county, and national level with local elected officials.
4.5.3 	As part of the Kildare LBAP Network , promote and support campaigns that encourage individuals to consider more environmentally sustainable lifestyle and consumer choices e.g. shop local campaigns, source food from local producers and / or grow your own, manage household waste separately (recycling, composting and general waste), stop food waste (stopfoodwaste.ie), reduce single use plastics, insulate your home, use public transport or car pool to work, etc.
4.5.4 	As part of the Kildare LBAP Network , promote the UN Sustainable Development Goals (SDGs) in the community and use them to help guide local community actions, planning, and land use decisions: https://sdgs.un.org/goals . Tidy Town's National Competition supports making the UN SDGs relevant to National Competition Categories.
4.5.5	Organise community screenings of films of sustainability, climate and biodiversity interest.



Objective 5: Collecting Evidence to Track Change and Measure Success

This objective aims to encourage and support people in the community with biodiversity recording and monitoring. Three targets have been identified to achieve this objective.

Why:

- Understanding the trends in biodiversity loss / gain at the local, national, and international levels are crucial to developing targeted solutions to address the problems and build on the successes.
- To help build up a picture of the health of the habitats and species in the area, which can act as an indicator of the overall health of biodiversity.
- The training of Citizen Scientists by experts equips local people to accurately monitor and record biodiversity in their area. For more specialist surveys, communities should engage the services of professional ecologists.
- Monitor actions taken to see if they are making a difference for biodiversity in the area.
- Help identify threats and opportunities for biodiversity.
- Deliver on the aims and objectives of local and national policies e.g. National Biodiversity Action Plan, All-Ireland Pollinator Plan, etc.

Target 5.1 Monitor and record biodiversity and biodiversity actions taken

Target 5.2 Build the capacity in the community to manage and record biodiversity

Target 5.3 Increase participation with this Biodiversity Action Plan



Ardclough Biodiversity Action Plan 2023-28

Info Box: Who are Citizen scientists?

All of us have the capacity to be Citizen scientists! This term refers to ordinary people being able to help with the scientific recording of biodiversity in our everyday lives. This has been transformed in Ireland with the advent of the National Biodiversity Data Centre (NBDC) who run the website www.biodiversityireland.ie. The NBDC describe citizen science as 'data collection by members of the public to help answer research questions. Having a strong recording community is essential to citizen science'. The NBDC website has become a hub for knowledge about Irish biodiversity. It features maps of the recorded occurrences of species of our Irish flora and fauna and information about their ecology and population trends. This is all vital information for scientists to use in order to assess how different species are doing over the years – a factor that has become crucial with our Biodiversity Crisis. For instance, this is one of the reasons why we know that one third of our bee species are in decline in Ireland – the NBDC has the figures to back this up.

The graphic representation below shows how Citizen science works with the NBDC from their webpage:

Citizen Science - National Biodiversity Data Centre (biodiversityireland.ie)

The other consideration is how Ardclough can use citizen science to help track how the actions of this BAP are working over the years. Doing things like pollinator FIT counts (flower-insect timed counts) can give lots of information as to how the local species and habitats are doing in general.

How your input helps national and global conservation



Submit your records and datasets to National Biodiversity Data Centre



Your data will help us to track Ireland's progress towards our goals to conserving biodiversity



We will share your data with the Global Biodiversity Information Facility, a global biodiversity database of more than 6 billion records

Ardclough Biodiversity Action Plan 2023-28

Target 5.1: Monitor and record biodiversity and biodiversity actions taken

Biodiversity Loss Drivers Addressed: 1, 2, 5, 7

No.	Action
5.1.1	<p>Monitor and record different pollinator species. Some recording activities to consider include:</p> <ul style="list-style-type: none"> • Establish at least one bumblebee and / or butterfly transect in the community. • Increase the number of moth records by encouraging interested member(s) of the public to put out moth traps in their gardens on a regular basis. Note: A licence is required to operate a moth trap and can be got from the NPWS. • Identify any solitary bee nesting sites in the community and monitor the species and populations. Solitary bees make up the majority of our native bee species and are crucial for pollinating wildflowers. See the link below* for further information on these species and good nesting habitats. https://biodiversityireland.ie/app/uploads/2022/05/ActionSheet_Solitary-Bees-WEB-2.pdf • Carry out a Flower Insect Timed Counts (FIT Counts) the methodology of which is outlined in the https://pollinators.ie/record-pollinators/fit-count/ This allows the community to monitor any change in the abundance of flower visiting insects. This is a great activity for children and schools.
5.1.2	<p>Monitor and record other specific habitats and species in the community. The exact habitat or species will depend on the conservation status of the species or habitat, the interest of people in the community, their willingness and availability to get involved, and resources available to carry out professional surveys. Some ideas include:</p> <ul style="list-style-type: none"> • Continue to monitor the owl populations including any new nest boxes installed for their uptake. • Monitor any bat boxes installed in the community. • Monitor local populations of other key stone species such as pine marten, kingfisher, yellowhammer, and otter which can act as indicator species for the quality of local habitats. The advice of an ecologist is recommended in setting up mammal monitoring devices such as trail cams and spraint surveys. • Promote the BirdWatch Ireland garden bird survey. All records should be submitted to BirdWatch Ireland. BirdWatch Ireland link: https://birdwatchireland.ie/our-work/surveys-research/research-surveys/irish-garden-bird-survey/taking-part-in-the-irish-garden-bird-survey/ • Participate in the National Biodiversity Data Centre’s national dragonfly & damselfly survey. They have lots of information about these species here: https://biodiversityireland.ie/surveys/dragonfly-ireland/
5.1.3	<p>Monitor any newly created meadows and verges in the community for different wildflowers, grasses, and other associated species. For support on this, link with the BSBI (Botanical Society of Britain and Ireland, https://bsbi.org/) to highlight any plant occurrences or populations of local or national importance in Ardclough. There is also the potential to run flora id courses in conjunction with Kildare County Council.</p>
5.1.4	<p>Monitor water quality in local waterbodies including lakes and the canal by taking part in the annual Irish WaterBlitz: https://www.freshwaterwatch.org/pages/events . In addition, An Taisce have a project to support communities with the management and biodiversity audits of lakes. Their support should be availed of to carry out an audit. See Appendix 5.</p>

Note: Where more detailed information on habitats or species are required then an ecologist should be engaged to carry out surveys. These may be required to build up a more comprehensive list of species and habitats in the area.

All records should be submitted to the National Biodiversity Data Centre (<https://biodiversityireland.ie/>).

Where there is a concern of a significant pollution incident contact the EPA complaints section where there are links to the relevant local statutory bodies: <https://www.epa.ie/our-services/compliance--enforcement/whats-happening/make-an-environmental-complaint/>

Ardclough Biodiversity Action Plan 2023-28

Info Box: Pollinators

Who are the pollinators?

Pollinators are species of insects who carry out the pollination of flowering plants that is vital for fruit and seeds to be produced. Many are aware of honeybees being pollinators but they are only one out of 99 native bee species in Ireland. The other 98 wild bee species are 21 bumblebees and 77 solitary bee species. In addition to bees, moths, butterflies, wasps, hoverflies, and ants can all act as pollinators – unwittingly transferring pollen with them from flower to flower as they seek tasty nectar to drink or gather pollen itself for their young to eat.




Why pollinators?

You may wonder what is all the fuss about pollinators in particular? Why are they the species that are being focussed on? The truth is that pollinator species are great indicators of the health of an ecosystem i.e. if there is a good number of various pollinator species then this means that there is enough food and nesting habitat for them i.e. enough healthy plants and undamaged natural habitats. So quite apart from pollinators being fascinating creatures – their presence or absence tells us a great deal about the state of biodiversity more generally. Also, they are relatively easy to recognise, if not at species level but at group level and it isn't always necessary for the citizen scientist to identify at species level e.g. FIT counts simply need the insect group identified – bumblebees, butterflies etc.




Target 5.2: Build the capacity in the community to manage & record biodiversity

Biodiversity Loss Drivers Addressed: 1, 2, 5, 7

No.	Action
5.2.1 	As part of the Kildare LBAP Network , engage with the local libraries to encourage them to be well stocked with biodiversity books, identification guidebooks, information leaflets, booklets, All Ireland Pollinator Plan guides, any other relevant information resources, and recording equipment. For example, the Heritage Council and Kildare Library Service have introduced Citizen Science Kits to selected libraries in County Kildare in 2023.
5.2.2 	As part of the Kildare LBAP Network , engage and support local schools with the supply of biodiversity recording equipment and identification resources. This can include posters, charts, guidebooks, swatches, pond dipping equipment, nets, pots, etc.
5.2.3 	As part of the Kildare LBAP Network , consider developing ecological training for local teachers and youth leaders and building up resources with local schools to create outdoor classroom areas for nature study. For example, water sampling and kick sampling resources to examine the macroinvertebrates that live in

Ardclough Biodiversity Action Plan 2023-28

	the bed of the canal and to monitor the health of the canal through this sampling process. This would be suitable for older age groups.
5.2.4 	As part of the Kildare LBAP Network , liaise with the Kildare and West Wicklow Education and Training Board to support https://kildarewicklow.etb.ie/ opportunities for access to funding for training and access to existing community education opportunities.

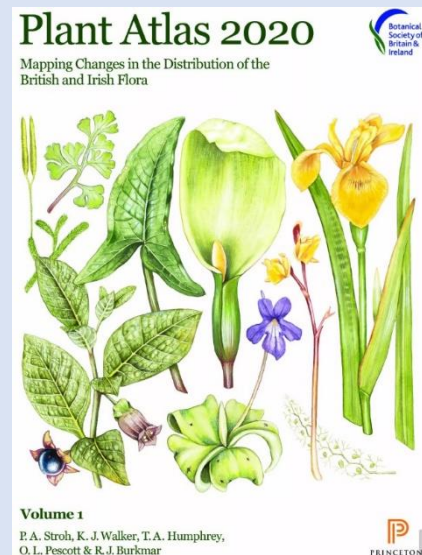
Info Box: Biodiversity Atlases

There is a wealth of information out there to inform us all on how populations of plants and animals have changed over recent decades. This can help when it comes to planning and prioritising biodiversity projects but also in helping to raise awareness and inform the public about the real state of affairs for species that may once have been common.

Many of these productions are freely accessible online but the trick is knowing where to look! A prime example is the production in 2023 of the Plant Atlas 2020 by the Botanical Society for Britain & Ireland (BSBI). See: <https://bsbi.org/plant-atlas-2020-in-ireland> for an introduction to this hugely valuable publication and how to use it as a tool for informing you about your local flora. Some other atlases include:

The Mammal Atlas of Ireland which can be downloaded as a pdf here: https://biodiversityireland.ie/app/uploads/2021/11/Mammal_Atlas_web.pdf

The Bird Atlas for Europe is available to research at this link: <https://birdwatchireland.ie/bird-atlas-maps-for-all-of-europe-now-online/>



Target 5.3: Increase participation with this Biodiversity Action Plan

Biodiversity Loss Drivers Addressed: 1, 2

No.	Action
5.3.1	Consider having an official launch of the BAP at the outset.
5.3.2	Carry out annual reviews of the Biodiversity Action Plan. This review should be used to identify progress on actions delivered, updates, and plans for the upcoming year.
5.3.3	Have an overall review of the Plan before it expires in 2028 and update it for the next agreed period of time.

Section 4: Resources

It is not necessary to re-invent the wheel to deliver this plan. There are numerous people, organisations, publications, and online resources available to achieve the best possible outcomes. Some of these are outlined in this section, although this is not intended to be an exhaustive list. It is also important that as new information becomes available that this should be considered and actions delivered or adjusted accordingly.

Links to useful online resources

The following is a list of useful links to guides on a range of common biodiversity subjects.

Subject	Link(s)
Bats	<ul style="list-style-type: none"> • https://www.batconservationireland.org/ • https://kildarebatgroup.wordpress.com/
Birdwatching	<ul style="list-style-type: none"> • https://birdwatchireland.ie/irelands-birds-birdwatch-ireland/
BSBI Plant Atlas for Ireland	<ul style="list-style-type: none"> • https://bsbi.org/plant-atlas-2020-in-ireland
Children's Biodiversity Activities	<ul style="list-style-type: none"> • https://birdwatchireland.ie/our-work/fun-learning/for-kids/ • https://www.woodlandtrust.org.uk/blog/2020/03/kids-nature-activities-self-isolation/ • https://www.rspb.org.uk/fun-and-learning/
Farming & Biodiversity	<ul style="list-style-type: none"> • https://www.farmingfornature.ie/ • https://www.irishagroforestry.ie/ • https://www.irishorganicassociation.ie/ • https://www.teagasc.ie/
General Biodiversity Issues	<ul style="list-style-type: none"> • https://www.biodiversityireland.ie/ • www.npws.ie
Habitat Boxes	<ul style="list-style-type: none"> • https://www.biodiversityireland.ie/wordpress/wp-content/uploads/Pollinator-How-to-Guide-1-ALT_FINAL.pdf • https://birdwatchireland.ie/app/uploads/2019/09/Nestboxes-factsheet.pdf • https://www.batconservationireland.org/wp-content/uploads/2015/05/BCIrelandGuidelines_BatBoxes.pdf
Hedgerows	<ul style="list-style-type: none"> • https://www.farmingfornature.ie/resources/best-practice-guides/hedgerow-management/ • https://www.biodiversityireland.ie/wordpress/wp-content/uploads/Pollinator-How-to-Guide-3-FINAL-1.pdf • https://www.heritagecouncil.ie/content/files/conserving_hedgerows_2mb.pdf • www.hedgelaying.ie
Invasive Alien Species	<ul style="list-style-type: none"> • https://invasives.ie/ • https://www.fisheriesireland.ie/Invasive-Species/invasive-species.html
Local Biodiversity News	<ul style="list-style-type: none"> • https://www.facebook.com/Wild-Kildare-1437313092971392/ • http://www.birdwatchkildare.com/ • https://kildarebatgroup.wordpress.com/ • http://www.kildare.ie/CountyCouncil/Heritage/Biodiversity/
Meadow Creation & Restoration	<ul style="list-style-type: none"> • https://pollinators.ie/wp-content/uploads/2023/06/Meadow-Guideline-2023-WEB.pdf
Orchards	<ul style="list-style-type: none"> • http://www.irishseedsavers.ie/blog/wp-content/uploads/2014/10/CreatingAnOrchard.pdf • https://www.theorchardproject.org.uk/
Peatlands	<ul style="list-style-type: none"> • www.ipcc.ie • www.bordnamona.ie/transform/biodiversity • www.abbeyleixbog.ie
Pollinator Friendly Planting Schemes	<ul style="list-style-type: none"> • https://pollinators.ie/resources/
Pollinators	<ul style="list-style-type: none"> • https://pollinators.ie/
Recording Biodiversity	<ul style="list-style-type: none"> • https://www.biodiversityireland.ie/record-biodiversity/

Ardclough Biodiversity Action Plan 2023-28

Schools & Biodiversity	<ul style="list-style-type: none"> • https://greenschoolsireland.org/biodiveristy/ • https://pollinators.ie/schools/ • http://www.heritageinschools.ie/teachers-resources/strand/living-things-science/p3?q=&c= • https://www.eckilkenny.ie/images/Biodiversity Plan for Schools.pdf • http://www.ipcc.ie/discover-and-learn/resources/ •
Signage	<ul style="list-style-type: none"> • https://www.heritagecouncil.ie/content/files/bored_of_boards_1mb.pdf • https://pollinators.ie/resources/signage-templates/
Soils	<ul style="list-style-type: none"> • https://www.soilassociation.org/
Swifts	<ul style="list-style-type: none"> • https://birdwatchireland.ie/publications/saving-swifts-guide/ • www.swiftconservation.ie/
Trees and Woodlands	<ul style="list-style-type: none"> • https://www.treecouncil.ie/nativeirishtrees • http://www.woodlandsofireland.com/sites/default/files/Management%20Guidelines%20for%20Ireland%27s%20Native%20Woodlands%202017.pdf • https://leafireland.org/
Wildflower Identification	<ul style="list-style-type: none"> • http://www.wildflowersofireland.net/index.php • www.bsbi.org
Wildlife Ponds	<ul style="list-style-type: none"> • https://www.farmingfornature.ie/your-farm/resources/best-practice-guides/building-a-wildlife-pond-on-your-land/ • https://burrenbeo.com/thc/the-hares-corner-ponds/ • https://invasivespeciesireland.com/wp-content/uploads/2017/10/AQUATICS_BOOK5.pdf • https://www.antaisce.org/ponds

Biodiversity Podcasts

The following is a list of some podcasts on biodiversity.

Subject	Link(s)
<i>In Your Nature:</i> Birds & general wildlife in Ireland	https://inyournature.buzzsprout.com/
<i>Farming for Nature:</i> Biodiversity on the farm	https://www.farmingfornature.ie/resources/podcasts/
<i>Naturefile:</i> All sorts of Irish ecology topics expertly presented	https://www.rte.ie/radio/podcasts/series/2407-naturefile/
<i>Root and Branch:</i> Each episode features a different native Irish tree	https://www.rte.ie/radio/podcasts/22155202-root-and-branch-birch-the-lyric-feature/
<i>Wild Flower (Half) Hour:</i> great wildflower information	https://tunein.com/podcasts/Podcasts/Wild-Flower-(Half)-Hour-p1065716/
Climate	https://climateambassador.ie/podcast/
Birds and Biodiversity	https://podcasts.apple.com/ie/podcast/in-your-nature/id1554068928
General Biodiversity	https://www.rte.ie/radio/podcasts/series/2407-naturefile/

Ardclough Biodiversity Action Plan 2023-28

Potential project funders

The following table outlines some of the potential sources of funding to help deliver the actions outlined in this Plan. It is also worth remembering other traditional forms of fundraising such as working with local businesses, bucket collections, table quizzes, etc.

Fund / Funding Body	Description
LEADER Programme, County Kildare LEADER Partnership CLG	To discuss potential project ideas and the availability of funding, contact the County Kildare LEADER Partnership offices at (045) 895 450 or email info@countykildarelp.ie . Website: www.countykildarelp.ie/
Kildare County Council	For additional information in relation to funding for biodiversity and heritage projects, contact the Heritage Officer - Tel. 045 980791 or email heritageofficer@kildarecoco.ie
Community Foundation for Ireland	The Community Foundation for Ireland has funded biodiversity surveys and actions under their Environment and Nature programme. https://www.communityfoundation.ie/grants/types-of-grants/environment-and-nature-fund
Heritage Council	The Heritage Council supports a wide range of heritage projects throughout the country through our annual grants programme. https://www.heritagecouncil.ie/funding
Local Authority Waters Programme	Their aim is to support communities and stakeholders in the delivery of local water quality projects and initiatives and have an annual grant package available. Contact your local officer to discuss potential projects by searching: https://lawaters.ie/funding/
NeighbourWood Scheme	This Forestry Service grant supports the creation and enhancement of new native community woodland schemes over 1ha in size (up to 12ha size) including the improvements to woodland facilities such as trail infrastructure. https://www.agriculture.gov.ie/media/migration/forestry/grantandpremiumschemes/2015/NeighbourWoodScheme240717.pdf
An Taisce	An Taisce is currently running a project supporting community groups with the creation of wildlife ponds. Visit their website for further details: https://www.antaisce.org/ponds

Useful contacts & sources

To help deliver the actions it will be important to work with a range of local and national stakeholder groups. The following outlines some of these. It is worth remembering that there may also be local individuals in your community who have particular interests and skillsets worth tapping into to deliver the actions. Remember that skills other than ecological skills can be an important asset when delivering certain actions.

Organisation / Group	Area of Expertise	Contact Details
Kildare County Council	The local Heritage Officer is available to discuss and provide information on biodiversity and heritage related matters and projects.	Tel. 045 980791 or email heritageofficer@kildarecoco.ie
Kildare Public Participation Network	Public Participation Networks (PPNs) act as an independent structure to facilitate public participation in policy and decision making with the local authorities. Community and voluntary, social inclusion, and environmental groups are encouraged to join Kildare PPN.	Telephone: 045 980700 Email: admin@kildareppn.ie Website: https://www.kildareppn.ie/
Wild Kildare	Local volunteer environmental organisation.	https://www.facebook.com/Wild-Kildare-1437313092971392/
Irish Wildlife Trust	National environmental charity covering all aspects of biodiversity. Laois and Offaly have an active	https://iwt.ie/

Ardclough Biodiversity Action Plan 2023-28

	branch that are available to support community biodiversity projects.	
BirdWatch Ireland	For information on Ireland's birds. There is an active branch in Laois.	https://birdwatchireland.ie/
National Parks and Wildlife Service	Responsible for managing the Irish State's nature conservation responsibilities.	https://www.npws.ie/
All-Ireland Pollinator Plan	National Plan with the aim of creating an Ireland where pollinators can survive & thrive.	https://pollinators.ie/
National Biodiversity Data Centre	National centre for the collection, collation, management, analysis and dissemination of data on Ireland's biological diversity.	https://www.biodiversityireland.ie/
Vincent Wildlife Trust	National environmental charity with the aim of conserving and research into selected Irish mammals.	https://www.vincentwildlife.ie/
Dublin Naturalists' Field Club	The Field Club is concerned with the conservation and protection of scarce and threatened plants and animals and the protection of sites of scientific interest.	https://dnfc.net/
Botanical Society of Britain & Ireland	National organisation that promotes the study, understanding and enjoyment of British and Irish botany.	https://bsbi.org/ireland
The Local Authority Waters Programme	A shared service working with Local Authorities and State agencies to meet obligations under the EU Water Framework Directive for the development and implementation of River Basin Management Plans in Ireland.	https://lawaters.ie/
Bat Conservation Ireland	An All-Ireland charity that promotes the conservation of bats and their habitats.	https://www.batconservationireland.org/
Kildare Bat Group	Local charity that promotes the conservation of bats and their habitats.	https://kildarebatgroup.wordpress.com/
Irish Peatland Conservation Council	A national charitable organisation with the aim of conserving and protecting a representative sample of Irish bogs, and to campaign on bog-related issues.	http://www.ipcc.ie/
Trees on the Land	An All-Ireland charity that aims to increase the amount of native Irish tree cover.	https://www.treesontheland.com/
Environmental Protection Agency	The EPA is committed to protecting people and the environment from the harmful effects of pollution. As part of this commitment, we provide a simple system for members of the public to make complaints about environmental pollution, disturbance or damage.	https://www.epa.ie/our-services/compliance--enforcement/whats-happening/make-an-environmental-complaint/

Appendix 1: Managing Community Meadows

A meadow is a semi-natural habitat that ecologists refer to as a semi-natural grassland. This means that its natural function and biodiversity are intact, but its existence is dependent on some human management. On the island of Ireland, a meadow left to its own devices, without any management, would eventually regenerate into woodland. There are a few common types of meadow described below that groups could consider as an alternative to short lawn grass. In addition, the All-Ireland Pollinator Plan has developed new guidelines on meadow creation and restoration: <https://pollinators.ie/wp-content/uploads/2023/06/Meadow-Guideline-2023-WEB.pdf>



Shortcut Meadow

This is a low meadow that is great for small areas or where the taller hay meadows are not suitable. It can be full of nectar rich wildflowers such as clovers, bird's-foot trefoil, dandelions, selfheal, and more.

Cutting: cut and lift every 4-6 weeks starting in mid-April and finishing in mid to late October.



Hay Meadow

This meadow aims to mimic the old agricultural hay meadow, once common across Ireland but now mostly gone. The grasses & other wildflowers support a range of wildlife. Over the winter the vegetation is short.

Cutting: this meadow requires a cut and lift at the end of the summer. This is typically carried out in Aug-Sept after most of the plants have set seed. The exact timing is site specific and is dependent on the species present and the landowner's needs / preferences. Additional cut and lifts may be required in the autumn or early spring to remove autumn / winter growth.



Roadside verges

The grass verges of roadsides can be a great space to increase biodiversity in your local area. A mower's width (approx. 50cm) can be mown regularly on the roadside of the grass verge whilst inside this can be left unmown until September - managed the same way as the hay meadows described above. This allows wildflowers and grasses to bloom and provides valuable nesting and resting habitats for pollinators, other invertebrates and mammals. If the verge is wide enough it can also be a good place to plant the occasional tree - especially on approach roads. It is recommended to use signs in these situations as people become familiar with this new method of verge management.

Cutting: The roadside edge of ~50cm width requires mowing regularly during the growing season. The inner meadow verge requires management as one of the two meadows mentioned above.

Meadow Creation & Maintenance:

Planning

The change of management from traditional lawn grass to meadow, whilst delivering many positive benefits for biodiversity and the environment, also presents maintenance challenges. With proper planning these can be overcome. Some things to consider at the outset:

1) What type of meadow is suitable for your location?

A few meadow options are listed above but the choice of meadow for each site will depend on practical issues, aesthetics, and personal / community preferences.

2) How are you going to cut the meadow?

Currently most communities rely on landscape / grass maintenance contractors to manage them and their public grasslands. Their equipment is typically not suited to cutting the longer grass in a meadow. It requires specialist equipment. For smaller meadows then this can be done using handheld scythes and / or handheld power tools such as strimmers, brush cutters or a power scythe. Larger meadows may require the assistance of contractors or local farmers who would be willing to cut and take the grass cuttings away.

- In larger areas, cut out from the centre. This gives mammals and birds in the meadow a chance to naturally move from the area
- If possible, let the grass cuttings lie for a few days. This allows more seed to drop and gives any insects a chance to escape! A dry cut is also easier to lift, particularly if it is being done manually.

The management of a community meadow offers the potential for an annual community event. It could include showcasing the old tradition of scything – perfect as a Heritage Week event. There may even be the opportunity to organise a community event that could tie in with tie in a local vintage club if they have old hay meadow equipment!

3) What are you going to do with the grass cuttings?

Finding a sustainable use for the hay / grass cuttings is important and one of the trickiest aspects of the meadow management. Some ideas include:

- Community or personal composting - this may only be practical for smaller meadows. It should not be composted near sensitive habitats such as a watercourse.
- For larger meadows, if there is an interested farmer in the area, they may be able to use it as fodder or for bedding. If this is not an option, then consult with Kildare County Council to explore your options and support with this issue.

Creating a Meadow

For existing grasslands, simply allow the grass to grow and maintain it as a meadow suitable for your requirements. It is not recommended that any wildflower seed be purchased for the purposes of adding it to the grassland. The grass sward will likely already contain a mix of grasses and other wildflowers naturally.

The seed of the annual wildflower Yellow Rattle (*Rhinanthus minor*) may be added to proposed hay meadows if it is not present and soil conditions suit. Seed should only be sourced from the local area from old unimproved meadows with the permission of the landowner.

Cutting Requirements

As per the tables above for the different meadow types.

Mown Fringes & Paths

Maintain the fringes on a regular basis along footpaths, seating areas, roads, and car parks. If the meadow is big enough, mow paths through it to allow access and opportunities for natural play, learning and other social benefits.

Meadows and the Law

It is the responsibility of the landowner to control plants listed under the Noxious Weeds Act 1936. Currently these are Ragwort, Thistle, Dock, Common Barberry, Male Wild Hop Plant, and Wild Oat.

Appendix 2: Note on Pollinator Friendly Planting

A crucial point to note before we go further with this section is that **the most beneficial areas** for pollinators and indeed other wildlife species are **natural, undisturbed habitats** such as native, wild grasslands such as in the photograph (i.e. not lawns, golf courses, playing pitches or pasture fields). This intuitive point has been recently scientifically established through research by Russo *et al.* (2022) of Trinity College Dublin and the All-Ireland Pollinator Plan (<https://pollinators.ie/conserving-diversity-in-irish-plant-pollinator-networks/>). Therefore, managing as many of our mown lawn areas as possible as meadows for biodiversity (see 3.2 below) is the absolute best action we can take for local biodiversity.



If, however, you are dealing with pots, planters and flowerbeds in gardens and the urban situation, then native Irish plants wherever possible are always the best choice.

Traditionally in recent years, community groups have turned to annual bedding plants such as Pelargoniums, Petunias, and Begonias for lots of colour. They are, however, of no use to pollinator species as the pollen has either been bred out of them or they have so many petals, the pollinators cannot physically access the pollen!

There are many other plants, a lot of them familiar as the beautiful cottage garden plants long used by Irish gardeners, that are pollinator-friendly. Another fantastic feature of these plants is that they are sustainable – they do not require replanting annually because they are perennial, and this also means that they require less watering – making them eminently sustainable in this time of Climate and Biodiversity Crisis. Where possible, using plants sourced locally from keen gardeners is a cost effective and sustainable way of creating new or adding to existing flower beds. Various time-honoured propagation methods are simple to learn and encourage the exchange of organic locally grown plants which are not treated with pesticides often invisible to the gardener but lethal to the insects we are trying to help. Several community garden groups around the country organise plant swaps which support this ethos of exchange of organic plants and gardening expertise. A list of pollinator friendly plants for different situations and seasons can be found in the All-Ireland Pollinator Plan Planting Code (<https://pollinators.ie/resources/>).

Planting bulbs to support pollinators

Another gardening action that can lengthen the time period of both pollinator food value and human interest is to plant spring-flowering bulbs into lawn areas. Pollinator-friendly spring bulbs are Snowdrops, Crocuses, and Grape hyacinths. The ever-popular daffodils and tulips unfortunately, are of no biodiversity value but even mixing through crocuses, snowdrops and grape hyacinths will be of some value. Planting these three bulb types through lawn areas is great for adding a splash of colour early in the season, announcing the arrival of spring! The delay in the first cut until the bulbs leaves have died back, allows other wildflowers such as dandelions to flower, also vital for emerging pollinators. Bulbs should only ever be considered for amenity grasslands; they are not suitable for use in species rich semi-natural grasslands. Planting bulbs such as these is considered a biodiversity-friendly gardening action but not a habitat creation action such as natural meadow actions outlined below.



Appendix 3: Tree Planting Design & Maintenance Considerations

Woodland Planting Design Considerations

Trees deliver a wide range of benefits and where possible we should aim to increase tree cover in our communities without disturbing other existing habitats of biodiversity importance e.g. wetlands, semi-natural grasslands etc.



Hedgerows

Hedgerows have huge nature value as wildlife corridors, connecting sites and linking them with their surrounding landscape. Mixed native hedgerows are the best for biodiversity and should be the number one choice for any new hedgerow. Avoid using Cherry Laurel for any new hedges as they are highly invasive. To increase biodiversity further the vegetation at the base of the hedgerows should be managed less intensively.



Small Groups & Clusters of Trees

Smaller groups of trees are ideal for smaller common / public green spaces and parks. They are also useful in breaking up larger green spaces while still maintaining mostly open space where this is a requirement. By planting trees in blocks rather than singly, it offers the opportunity to eliminate grass cutting directly underneath the trees. This reduces the potential damage from lawnmowers and strimmers and creates additional habitat to support wildlife e.g. bumblebees.



Woodlands (Small to Large)

A woodland can be thought of as an area of land with trees as the dominant vegetation type. In community settings they can vary from small pockets to larger areas of woodland. They support native wildlife and offer opportunities for recreation and amenity. The photo shows a newly planted woodland in a residential estate. Note how the grass underneath is left uncut which creates additional habitat, reduces grass maintenance, and avoids the potential for accidental damage to the trees from lawnmowers.



Shelterbelts

A shelterbelt is a linear strip of trees, anything from 2-20m width, that is designed principally to reduce wind speed and provide sheltered areas – ideal for sports grounds! They are also great for screening and act as important wildlife corridors. As for the woodland above, the grass underneath is left uncut creating additional habitat.



Orchards & Food Forests

These woodland types are great for community spaces as they not only provide benefits for biodiversity, but they also provide people with fruit and the potential for community events at blossom and harvest time.

Ardclough Biodiversity Action Plan 2023-28

The following are some practical tips for new tree planting design and maintenance:

- **Marking Out:** Set out all tree planting areas and inform grounds maintenance staff to avoid accidental damage to trees.
- **Setting Back:** It is important to set back from walls, roads, kerbs, blacktopping, and buildings. Do not plant against field stone walls (these are an important habitat in their own right).
- **Appropriate Planting:** Do not plant trees in places where they will have a negative impact on special or protected habitats and landscapes and resident flora and fauna. In most cases native tree planting is beneficial for the local environment and for biodiversity support. However, in certain situations planting trees can damage existing rare habitats and cause permanent habitat change. You must not plant trees on unenclosed land, moorland, wetland, heathland, bog or unimproved or minimally improved pasture or old meadow that has never been ploughed. Similarly, you must not plant on land falling within an SAC, SPA, NHA or any other designation without prior approval from the NPWS or relevant statutory body.

Similarly, it is important to consider your neighbours. Large trees may not be appropriate next to a building or garden where they will excessively block light or views, or otherwise interfere with their enjoyment of their property.

- **Site Conditions:** Design the planting mix to take account of local site conditions such as soil type, shelter, etc.
- **Scrub:** Avoid interfering with scrub and do not select scrubby areas for tree planting, they are best left alone.
- **Licence Requirements:** As of the production of this Action Plan, if any single block of new woodland planting exceeds 0.1 hectares (0.25 acres) then a Forest Service licence is required. This minimum area may be subject to change and so it should be checked in advance. A registered forester is required to carry out this on your behalf.
- **Maintenance Around New Trees:** Brambles, nettles, thistles and other common weeds all deter grazing and browsing animals and others who may trample or eat your trees. They are a cost-effective and natural alternative to barbed wire and plastic tree guards and will protect and shelter your trees if you let them. They also add additional wildlife value to new planting schemes.

Grasses and other herbaceous vegetation will compete with young trees for nutrients and light and the trees will grow more slowly on account of this during the first few years. Under the ground however they will be establishing strong roots which will serve them well in future and they will make use of the valuable shelter provided. After 1-2 years, the trees will have put roots below the other vegetation layer and you will find they take off and grow up fast, quickly shading out these plants. In the meantime, the grasses and other vegetation will provide important habitat for wildlife.

In general, any tall vegetation that is falling or hanging over the newly planted trees should be pulled or trampled as these can cause trees to lean or fork. This may be required 2-3 times in the first two seasons after planting. This is also a good opportunity to take a head count and note any failures. Do not use herbicide to control vegetation around trees, this is damaging for biodiversity and can also damage soil growing conditions for the trees.

- **New Tree Planting:** The following are some practical tips for planting new trees:
 - Where possible use bare root whips in planting schemes. These are preferable to standards as they establish quicker, have a higher success rate, and are less expensive to supply and plant.
 - Tree stakes and ties are only required for larger trees. These should be monitored during the year for defects that may damage the trees. Similarly, the ties should be loosened as the tree grows to avoid damage. All ties and stakes should be removed once the tree can stand unsupported without bending or shifting in the ground. This usually takes about 18 months to 3 years depending on the size the tree was planted at.
 - When planting new areas of woodland, avoid straight lines. Plant in small groups of the same species with the larger species concentrated to the back or centre of the mix and smaller species to the front or perimeter.
 - Planting spacings for new woodland areas: this will depend on specific project requirements. However, a 2-metre centre guide can be used where biodiversity is the primary aim of the planting scheme.

Ardclough Biodiversity Action Plan 2023-28

- The planting season for bare root whips is November to March. It is best to plant as early in the bare root season as possible to allow plants time to bed in and minimise losses in the case of a dry spring or summer.
- It is important to avoid any accidental damage caused by lawnmowers or strimmers. In general, it is best to avoid the use of these close to the base of trees as they can very quickly ring-bark a tree which will lead to the death of the tree. Allowing the vegetation to grow under new tree planting is the best way to avoid damage while providing additional habitat.

Hedgerow & Shelterbelt Planting

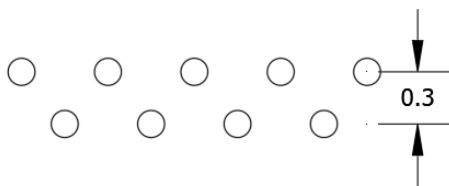
Native hedgerows and shelterbelts are suitable for use along site boundaries to provide biodiversity habitat, shelter, screening, and to act as a deterrent to would-be intruders and livestock, while allowing small mammals such as hedgehogs to pass through.

A hedge or hedgerow is a line of closely spaced shrubs with or without occasional trees, planted and trained to create a barrier or to delineate the boundary of an area. These are a common feature in the Irish landscape.

A shelterbelt is a linear strip of trees, anything from 2-20m width, that is designed principally to reduce wind speed and provide sheltered areas. They are also great for screening and act as important wildlife corridors.

Planting Design Considerations for Hedgerows

A hedgerow can be planted at anything from 3-8 plants per metre during the bare root season (Nov-March). For best results, it should be planted in double staggered row approximately 30cm wide. Use a string line to achieve a straight line at planting.



Newly planted native hedgerows along site boundaries – while it is hard to make out the trees from the other vegetation in the photos, the long grass can actually help the new trees by providing shelter, prevent the ground from drying out excessively during dry spells, and deterring rabbits. They also provide habitat for a host of other wildlife.

Ardclough Biodiversity Action Plan 2023-28

Maintaining Hedgerows for Biodiversity

The ideal hedgerow to support biodiversity is tall, wide and dense at the base, with a wide, uncultivated, grassy margin and that is connected with other hedgerows, woodlands, and natural habitats in the landscape. This applies to most hedgerows on farms, residential estates, commercial properties, roadsides, gardens, etc. where space and site safety considerations allow.

The following graph has been adapted from the Irish charity *Farming for Nature's* guidelines on hedgerow management. Their website and leaflet has further information on why and how to manage hedgerows for biodiversity: <https://www.farmingfornature.ie/resources/best-practice-guides/hedgerow-management/>

Getting Started

- Carry out a simple assessment of the hedgerows and other site / field boundaries including the species and condition
- Tailor the management of each hedgerow to suit the hedgerow and the needs of the landowner. Avoid over management of hedgerows as regular tight cutting of a hedge can reduce the biodiversity potential of it. The most important action for established hedgerows can often mean doing nothing - at least for a while - until it is taller and wider. Some of the encroaching vegetation into the margins of the neighbouring fields / green spaces (e.g. blackthorn and briars) may need to be kept cut back when they are young to prevent them becoming established.
- Ideally, established hedgerows should be allowed to grow upwards and outwards
- Tall hedgerows with plenty of trees should be given just a side trim.
- Where there is a row of trees but the hedge is gappy at the base, consider cutting back sections to allow more light in and therefor encourage greater diversity.
- Hedges with wide grass or wildflower margins and short hedges with few or no trees are better cut in an A-shape so the broad base allows light and encourages a dense growth at the ground level which is better for ground nesting birds.
- Avoid cutting all hedgerows at once, consider a 3-5 year rotation to allow flowers and berries to grow in alternate sections.
- For hedgerows in poorer conditions, fill gaps in hedges by planting more diverse native species (of Irish origin and provenance). Consider coppicing or laying the leggy, gappy areas (for more information on laying hedgerows see <https://hedgelaying.ie/>). If livestock are causing a lot of damage, it may be better to fence them back until the hedgerow is more established and resilient.
- For new hedgerows in fields with livestock then fence up to 2m out from the hedgerow base.

Further Actions & Considerations

- Manage in a landscape context rather than an individual hedgerow context. This means strengthening and managing the wider network of field / site boundaries in the landscape with biodiversity in mind including other hedgerows, treelines, drains / ditches, banks, stone walls, etc.
- Delay trimming as late as possible outside the bird nesting season - maybe until January and February (though make sure the ground isn't prone to becoming too wet / soft) as the surviving berry crop will provide valuable food for wildlife.
- Similarly, allow the hedgerow bases and other field / site margins to flower and set seed before cutting.
- Avoid using chemical sprays or fertilisers near hedgerows as they can have a negative impact on biodiversity that live there.
- For roadside hedgerows, the health and safety of road users takes precedence over other considerations. These may be cut during the year as needed to maintain sight lines and road safety.
- If planting a new hedge, consider banking it like old hedgerows; this creates more than one habitat.
- Hedgerow cutting is usually undertaken with a flail, but a circular saw is a less damaging alternative which results in a cleaner cut and encourages better re-growth.
- If there are any invasive plants in the hedge then take the appropriate measures should be taken to control and eradicate them.
- The cutting of hedgerows must be carried out in accordance with Section 40 of the Wildlife Act 1976 as amended by the Wildlife (Amendment) Act 2000 and the Heritage Act 2018. These Acts stipulate that it is an offence to destroy vegetation on uncultivated land between the 1st of March and the 31st August each year. There are exemptions to this to allow for the maintenance of sight lines for road safety reasons.

Ardclough Biodiversity Action Plan 2023-28

Species Selection for Woodlands, Hedgerows and Shelterbelts

It is recommended that native species should be used for new woodland, hedgerows, and shelterbelts. Non-native invasive species, such as Cherry Laurel (*Prunus laurocerasus*), Snowberry (*Symphoricarpos albus*), *Rhododendron ponticum*, etc. should be avoided in all circumstances.

Plants should only be sourced from certified Irish native seed origin and provenance. This will help prevent the import of pests and diseases. For example, Ash Dieback was brought in on imported tree stock and has now spread across the country. It is also important to avoid using 'improved' or forestry selected genotypes of native trees as they will narrow the genetic base of our native trees.

The following table lists some of the native trees and shrubs. Please note the selection of the exact species mix and percentage of each will depend on site conditions, landowner requirements, and availability of suitable tree stock.

Species	Notes
Small trees / shrub species	
Hawthorn (<i>Crataegus monogyna</i>)	This is the most common hedgerow species in the Irish countryside. It can be used as the principal species for most sites. It creates a good quality stock proof barrier due to its thorns and dense habitat after cutting. Good show of cream flowers in May and red berries in autumn but this will only happen on bushes that are not cut that year.
Blackthorn (<i>Prunus spinosa</i>)	Another common hedgerow species. This is always the first to blossom in the hedgerows with white flowers in March before the leaves appear in April followed by purple fruit known as sloes in autumn. This is a particularly thorny species.
Hazel (<i>Corylus avellana</i>)	A small tree that favours limestone soils. Deciduous with large green leaves, catkins in early spring and hazelnuts in autumn.
Guelder Rose (<i>Viburnum opulus</i>)	A beautiful native shrub with large white blossoms in spring and scarlet red berries in autumn. Deciduous, its leaves turn deep red before they fall. Usually found in hedgerows along drains as it needs damp conditions to thrive.
Dog Rose (<i>Rosa canina</i> agg.)	A scrambling climber that will grow through other shrubs. Striking white flowers in June with bright scarlet hips in autumn. Thorny branches with small green deciduous leaves.
Purging Buckthorn (<i>Rhamnus catharticus</i>)	A native but uncommon deciduous shrub, favours damp, limestone soils. Green oval leaves with small white flowers in spring with green to black berries in autumn. The foodplant of the Brimstone butterfly caterpillars.
Spindle (<i>Euonymus europaeus</i>)	A green-branched shrub, deciduous with leaves turning bright red before they fall. Dramatically hot-pink coloured fruit that open out to reveal orange seeds. It favours limestone to neutral soils. Often found growing with Guelder rose in the wild.
Holly (<i>Ilex aquifolium</i>)	An evergreen shrub/small tree. Prickly leaves. Male and female trees needed for berries to be produced. White flowers in spring and summer with the famous red berries in autumn and winter.
Elder (<i>Sambucus nigra</i>)	A common shrub of high biodiversity value with large heads of cream flowers in early summer and dark berries favoured by the birds in September. It germinates easily in most soil types but it does favour nutrient-rich areas.
Willow/Sally (<i>Salix</i> species)	A common tree of damp ground, willows have a high biodiversity value with their catkins being an extremely important food resource for pollinator species in early spring. Very fast growing, it can take a lot of cutting but it will grow on damp ground where other species might be slow to grow.
Larger trees	
Pedunculate Oak (<i>Quercus robur</i>)	Both native oaks are of huge biodiversity importance supporting nearly 300 other species of insect, bird, lichen, fern etc. This species prefers heavy, damp, lowland soils.
Sessile Oak (<i>Quercus petraea</i>)	As above, this Oak species is hugely important for biodiversity. This is the species more suited to uplands and will grow in lighter, poorer soils than <i>Q. robur</i> .

Ardclough Biodiversity Action Plan 2023-28

Species	Notes
Downy Birch (<i>Betula pubescens</i>)	This native tree is typical of bog edges and will happily grow on damp, peaty soils. Deciduous with small leaves, catkins in spring, good golden leaf colour in autumn.
Silver Birch (<i>Betula pendula</i>)	This is a tall native tree with an open crown that is similar to the Downy birch but needs good drainage.
Yew (<i>Taxus baccata</i>)	A native conifer, slow-growing evergreen with dense foliage thus making a good year-round screen. Both male and female trees needed to produce the red berries which are poisonous to humans but eaten by birds. Leaves are toxic to livestock and therefore it was widely planted in graveyards
Rowan (<i>Sorbus aucuparia</i>)	Native, does well in neutral to peaty soils. Clusters of cream flowers in spring with red berries favoured by birds in late summer to early autumn.
Crab Apple (<i>Malus sylvestris</i>)	Native, deciduous small tree. White & pink blossom, small green fruit in autumn.
Wild cherry (<i>Prunus avium</i>)	A small tree featuring many drooping clusters of white blossoms in spring with red cherries in late summer. Deciduous with lots of autumn colour on the leaves. Likes fertile soil but will tolerate clays.
Bird cherry (<i>Prunus padus</i>)	Another small native cherry with upright clusters of white flowers and black fruit in autumn. Great for birds. Prefers damp, fertile soils.
Alder (<i>Alnus glutinosa</i>)	A small tree that favours damp ground. The alder likes to have its roots in wet areas and is often found on stream and riverbanks in the wild.
Irish whitebeam (<i>Sorbus hibernica</i>)	Native to Ireland, favours limestone soils, deciduous. Attractive white undersides to oval leaves, cream groups of flowers in spring and red berries in autumn.
*Ash (<i>Fraxinus excelsior</i>)	The Ash is Ireland's most common tree species in the hedgerows. Ash dieback disease came into Ireland through the importation of Ash saplings from mainland European nurseries in the last decade. The disease has now been recorded in every county in Ireland and is expected to kill at least 90% of our Ash trees over the next decade. The only hope for the survival of Ash trees in Ireland is that a small percentage will prove immune to it.

*Please note that Ash, which is our most common hedgerow tree species is not available for planting due to the presence of Ash Dieback.



Appendix 4: Ash Dieback

Unfortunately, our Ash (*Fraxinus excelsior*) trees all over Ireland are facing into a very uncertain future as the invasive fungal pathogen known as Ash Dieback (*Hymenoscyphus fraxineus*) is now well established across every county in Ireland. Foresters' opinions on the survival rates of Ash in the landscape range between 1% and 10%. This is a stark reality that we must acknowledge and therefore protecting the Ash trees we have left is important too in order to monitor them for signs of resistance. Monitoring Ash trees in the local landscape is a project that may interest the local community groups to work on over the coming years. Scientists believe the key to survival of the Ash species is the genetic biodiversity of wild Ash trees i.e. some trees are bound to have a natural immunity if there is enough genetic diversity within the Irish Ash population. Therefore, hopefully several of the Ash trees in the local community will survive and thrive but unfortunately only time will tell.



Note the typical brown patches on these infected ash leaves

Leafless, outer branches of a diseased ash. Also note the epicormic growth i.e. green leaf shoots on the main branch but not on the outer branches.



What does ash dieback look like?

Ash dieback can affect ash trees of all ages. Younger trees are killed off quicker, as seen in hurley ash plantations but in general, all affected trees will show some or all these symptoms:

- Leaves develop brown patches in the summer.
- Leaves wilt and turn black. Leaves might shed early.
- Dieback of the shoots and leaves is visible in the summer.
- Lesions develop where branches meet the trunk. These are often diamond-shaped and dark brown.
- Inner bark looks brownish-grey under the lesions.
- New growth from previously dormant buds further down the trunk. This is known as epicormic growth and is a common response to stress in trees.

The fungus overwinters in leaf litter on the ground, particularly on ash leaf stalks. It produces small white fruiting bodies between July and October which release spores into the surrounding atmosphere. These spores can travel many kilometres to land on fresh ash leaves and infect another tree. The fungus then grows inside the tree, eventually blocking its water transport systems, causing it to die.

There is some good news! A very small proportion of ash trees are showing natural tolerance to the fungal disease. This means that they show minor symptoms and the disease does not have noticeable impact on their growth or health. Teagasc is working to identify such trees and build up a gene bank with the ultimate goal of producing tolerant ash seed and restore ash trees to Irish forests and hedgerows. This is where you come in! The community can get familiar with their local ash trees and monitor them over the coming years. Any that show resistance should be highlighted to Teagasc and hopefully this beautiful species that plays such a huge role in our Irish culture and heritage will not be lost to us.

Sources:

<https://treecouncil.org.uk/wp-content/uploads/2020/06/Tree-Council-Ash-dieback-tree-owners-guide-FINAL.pdf>

<https://www.teagasc.ie/crops/forestry/research/ash-resistance-to-ash-dieback/>

Appendix 5: An Taisce Wildlife Pond Project






Wildlife ponds and other wetland features can be one of the most biodiversity rich habitats in urban settings. An Taisce currently has a project underway to raise awareness and engage communities about these small wetland habitats and their importance for biodiversity, water quality and climate adaptation. It describes ponds as *'extraordinary reservoirs of biodiversity and have a critical role as Ireland faces our significant biodiversity loss. Over 50% of Ireland's amphibian wetlands have been lost to drainage, industrial peat extraction, pollution and natural senescence in the past 100 years. Of the 12,200 small enclosed water bodies across Ireland, 8,000 are less than a hectare in extent and the smallest categories have been subject to the greatest pressures. Ponds have been demonstrated to host more biodiversity than rivers and lakes, particularly macroinvertebrates and less common species (2/3 of all freshwater species!). Permanent and naturally vegetated ponds are excellent at carbon sequestration (Gilbert et al., 2014). Taylor et al. (2019) found that small ponds sequestered 20-30 times the amount of carbon compared with woodlands, grasslands and other habitats'*.

Ponds can be considered for most sites, from small gardens to large parks. Careful design and construction are essential to ensure they are successful and deliver maximum value for the community.



Appendix 6: Making and Leaving Room for Biodiversity

Some species can benefit from additional assistance for nesting, hibernating or resting spaces. These can be in the form of habitat boxes designed specifically for this species or by leaving areas largely unmanaged - untouched by human hands! Some to consider include:





	<p>Bee Boxes</p> <p>These days there are many types of bee boxes that can be made or bought. It is now advised to move away from the large Bee/Bug hotels as disease can spread rapidly where there are big numbers of insects. So small is beautiful! They can be homemade with advice from websites such as the pdf below.</p> <p>https://pollinators.ie/wordpress/wp-content/uploads/2018/04/How-to-guide-Nesting-2018-WEB.pdf</p>
	<p>Solitary Bee Banks</p> <p>Patches of bare earth on well drained, sunny south or west facing banks (or an aspect in between) can provide nesting opportunities for solitary bees. It is important that there is a good supply of flowers nearby for the bees to feed from. For further details please see:</p> <p>https://biodiversityireland.ie/app/uploads/2022/05/ActionSheet_Solitary-Bees-WEB-2.pdf</p>
	<p>Swift Boxes</p> <p>The Swift (<i>Apus apus</i>) is an extraordinary migrant bird species. It overwinters in Africa before coming back to Ireland in late spring / early summer. Over millennia it has evolved to live alongside humans with house gables and gutterings replacing its original cliff face nesting sites. It has suffered declines for several reasons, one of which is a lack of nesting sites due to better maintenance and draught-proofing of houses. We can help by providing nest boxes on suitable buildings. For further information please see BirdWatch Ireland's guide: https://birdwatchireland.ie/publications/saving-swifts-guide/</p>
	<p>Bat Boxes</p> <p>According to Kildare Bat Group, of the nine confirmed resident species of bats in Ireland, seven have been recorded and confirmed in Co Kildare. Local groups can aid the conservation efforts by working with bat specialists to install bat boxes at identified locations in the community where it is deemed appropriate.</p> <p>https://kildarebatgroup.wordpress.com/</p>
	<p>The Hare's Corner</p> <p>This is an old Irish tradition that was carried out on farms across the country in the past. It is a beautiful idea and the concept of creating a mini wildlife sanctuary in today's world makes so much sense. It acts a safe place for insects, birds, mammals, and plants to flourish without the constant tidying that us humans bring to nature. There is lots of potential with this action: you could have a small example in your own garden and a larger one in your local park or nearby farm.</p>

Appendix 7: Common Terrestrial Plant Invasive Species

The following are just some of the more common terrestrial plant species that are found in Co Kildare.

Species	Description
 <p>Cherry Laurel <i>Prunus laurocerasus</i></p>	<p>Means of Spread: Some spread by berries being eaten by birds but most spread is by layering and suckering. It is still widely sold in garden centres / nurseries and used in landscaping schemes. Most popular garden hedging species.</p> <p>Main Risks: Forms thick impenetrable thickets that cast year-round shade, suppressing natural vegetation. All parts of the plant contain the highly poisonous chemical compound cyanide, therefore wear gloves when dealing with it.</p> <p>Control: Excessive growth can be tackled by continuous cutting back (it's important to avoid it flowering and setting seed). However, to eradicate it requires cutting back hard and the stem treatment with herbicide. With bigger plants growing freely in woodland situations it grows back strongly after being cut and will spread from lateral roots and shoots. For the community, it will be important to create awareness about it's problems and discourage its use in the community.</p>
 <p>Japanese Knotweed <i>Fallopia japonica</i></p>	<p>Means of Spread: Plant is sterile in Ireland and only spreads through root and stem material, accidentally or deliberately moved by human action, or washed along rivers. As little as 0.6g of root or stem required to regenerate.</p> <p>Main Risks: Seriously damages houses, buildings, hard surfaces, and infrastructure growing through hard surfaces, usually where weaknesses already exist. It forms dense thickets, shading out natural vegetation.</p> <p>Control: Control must only be carried out by professionals. Professional treatment required for several years but costs fall sharply as amount of foliage to be treated reduces.</p>
 <p>Rhododendron <i>Rhododendron ponticum</i></p>	<p>Means of Spread: Produces large quantities of viable seed (3000-7000 per flower) i.e possibly one million seeds per plant! Readily layers i.e. forms new growth, where branches touch the ground. It is still widely sold in garden centres / nurseries and is used for game cover and in forestry landscaping.</p> <p>Main Risks: Forms thick impenetrable stands that casts year-round shade, suppressing natural vegetation, exacerbated by the very acidic nature of leaf litter.</p> <p>Control: Excessive growth can be tackled by cutting back, but herbicide treatment is required to eradicate, with application over several years required to tackle seed bank in soil. Large plants will need to be dealt with professionally but small saplings can be simply pulled up, crucially before they flower after 4-5 years of growth.</p>
 <p>Traveller's joy <i>Clematis vitalba</i></p>	<p>Means of Spread: Also known as Old Man's Beard this climbing species with small cream flowers in summer and woolly/hairy seed heads in autumn that will spread on the wind. A garden escapee, probably deliberately planted in hedges and woodland in the past.</p> <p>Main Risks: This deciduous climber can form dense thickets that blanket trees, shrubs and ground flora, ultimately depriving them of light.</p> <p>Control: Excessive growth can be tackled by cutting back, but herbicide treatment is required to eradicate, with application over 2-3 years required to deal with regrowth. Large plants will need to be dealt with professionally but small saplings can be simply pulled up.</p>

Ardclough Biodiversity Action Plan 2023-28

Species	Description
 <p data-bbox="108 526 359 593">Winter Heliotrope <i>Petasites pyrenaicus</i></p>	<p data-bbox="475 215 1479 315">Means of Spread: Winter heliotrope is a persistent perennial i.e. it doesn't stop growing. It has an extensive rhizome system so the plant spreads vegetatively. Ireland only has male plants so no seed is produced.</p> <p data-bbox="475 318 1479 450">Main Risks: Winter heliotrope forms dense colonies of plants that outcompete native species. The dense growth creates abnormal shade in Irish habitats e.g. woodlands. With its strong growth in late winter & early spring this allows it to outcompete native woodland spring flora.</p> <p data-bbox="475 452 1479 824">Control: The EPA carried out an in-depth study of the control of Winter heliotrope in 2019. The rhizomes, stems & leaves all have the potential to generate new plants, so particular care should be taken to avoid transport of soil or vegetation off site. The EPA guide contains best practice guidelines which point towards the use of Synergon herbicide as having the best results, but it cannot be used near trees. Where this plant occurs under trees, this just leaves either glyphosate use or physically digging out the plants. However, another point to consider is if a plant population is growing along a stream or waterway. Both these methods have the potential to negatively impact upon the waterway and any other sites downstream. Often the best work that can be done by a local community is to limit the extent of the Winter Heliotrope in their local area and where colonies exist, to confine them to its current area.</p>
 <p data-bbox="108 1086 343 1153">Pheasantberry <i>Leycesteria formosa</i></p>	<p data-bbox="475 826 1479 927">Means of Spread: Also known as Himalayan honeysuckle this is a deciduous shrub and its seeds are dispersed by water and by birds and mammals. Still widely sold in garden centres/nurseries and popular as game cover.</p> <p data-bbox="475 929 1479 963">Main Risks: Forms thick impenetrable thickets that shades out natural vegetation.</p> <p data-bbox="475 965 1479 1066">Control: Control of this plant can be carried out by a local community. Individual plants can be dug out in early Spring (i.e. February/March) before seed is set. Leave plants on site to dry and rot down.</p>
 <p data-bbox="108 1444 363 1512">Three-cornered leek <i>Allium triquetrum</i></p>	<p data-bbox="475 1155 1479 1223">Means of Spread: Small herbaceous perennial, spreads vegetatively and by seed. A garden escape and scheduled species.</p> <p data-bbox="475 1225 1479 1326">Main Risks: Outcompetes native plants at the base of hedgerows and along road verges. This is a scheduled invasive species i.e. its presence in the wild should be reported to www.invasives.ie</p> <p data-bbox="475 1328 1479 1460">Control: Control of this plant can be carried out by a local community. Individual plants can be dug out in early Spring (i.e. February/March) before seed is set. Leave plants on site to dry and rot down. The plant has a very distinctive three-angled stem. Both it and the leaves smell strongly of garlic.</p>
 <p data-bbox="108 1836 383 1901">Himalayan balsam <i>Impatiens glandulifera</i></p>	<p data-bbox="475 1514 1479 1615">Means of Spread: This pretty plant was deliberately planted in the past along river banks. Its seeds drop into the water and then get spread further downstream. This is why it must be dealt with on a catchment-wide basis.</p> <p data-bbox="475 1617 1479 1684">Main Risks: It shades out native flora and then in winter when it dies back, it leaves the river/stream banks exposed and susceptible to erosion.</p> <p data-bbox="475 1686 1479 1818">Control: Despite being so problematic, it is easily pulled up and therefore is one that can be dealt with by community groups. It is worth remembering though that even if a catchment-wide project cannot be achieved, then local plant removal is still worthwhile as it will help the native flora to return and will lower the number of seed that spreads.</p>

Appendix 8: Soils and Biodiversity

Soil physical properties (edaphic factors) affect the diversity of organisms living in the soil environment. These include soil structure, temperature, pH, and salinity. Soils are home to more than 25% of the earth's total biodiversity and support many natural processes on which we all depend:

- life on land and water,
- nutrient cycling and retention,
- food production,
- pollution remediation,
- hydrological processes and the conservation
- climate regulation and carbon sinks, carbon sequestration.

There is increasing evidence that shows that multiple sustainability goals can be addressed simultaneously when soil organisms are put at the focus of land management; this is because the activity and interactions of soil organisms are intimately tied to multiple processes that ecosystems and human society rely on.

The Soil Food Web

The **soil food web** (see image on the next page) is the community of organisms living all or part of their lives in the soil. It describes a complex living system and an often-overlooked area of biodiversity in the soil and how it interacts with the environment, plants, and animals. Processes in this biologically active part of soils support vital processes such as nutrient cycling, water storage capacity, and carbon fixation in our soils. A healthy soil microbiome supports local biodiversity and climate resilience.

Rethinking our Relationship with Soils

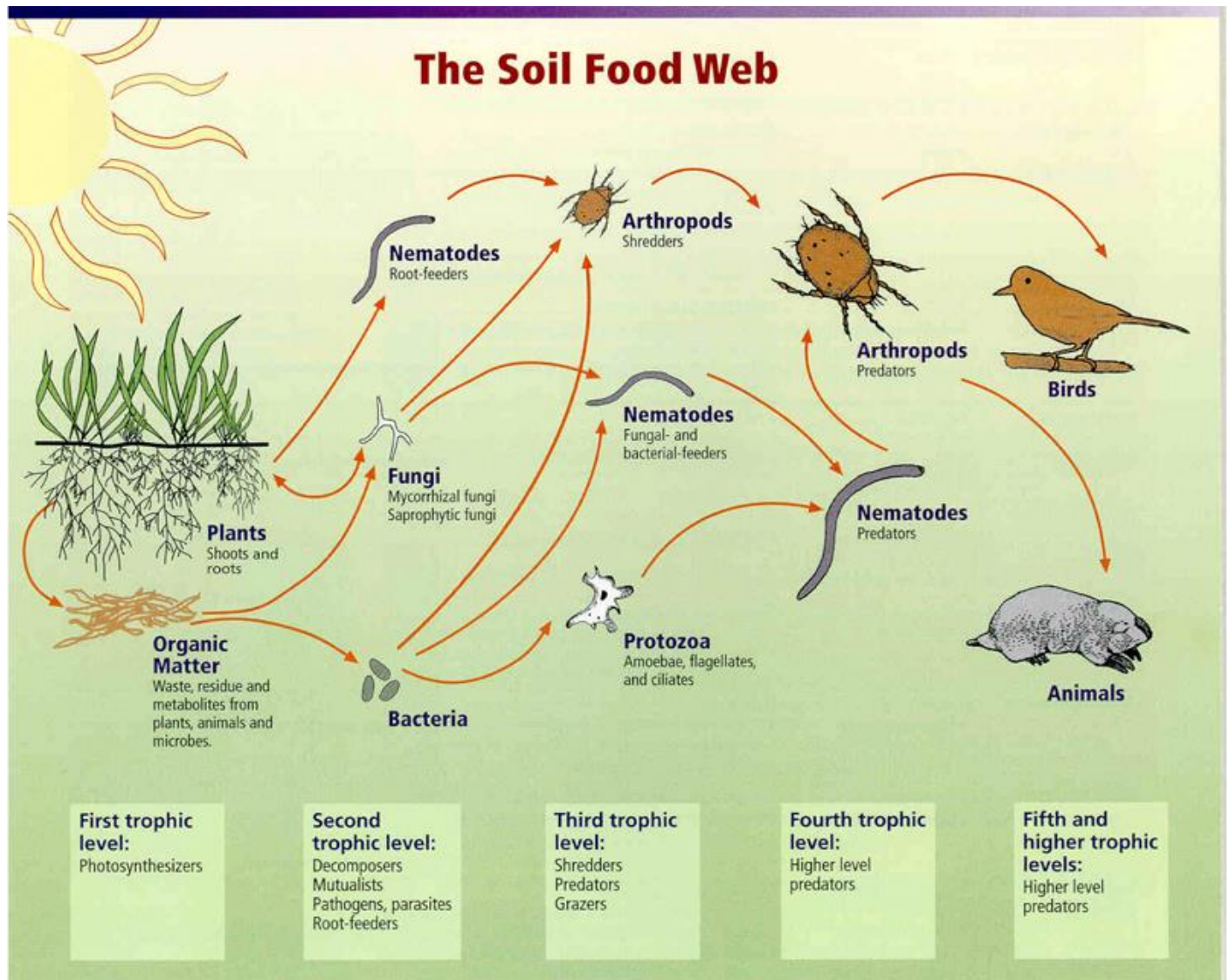
It's important that we start to re-think our relationship our soils and their management including in urban areas, town parks and amenity grasslands. Traditional management of amenity grasslands and landscaped areas has relied heavily on inorganic fertilisers and pesticides (fungicides, insecticides, and herbicides). There have come to be accepted as normal management practice and even essential for urban green space management. This approach is totally unsustainable, in ecological terms.

Natural grasslands and woods are self-sustaining systems, so we need to start thinking of our parks and urban green areas as eco-systems which should have minimal management input and to maintain healthy soils with well-balanced biological and natural physical/chemical processes and cycles.

Useful Links

[7-ways-to-save-our-soils-2016.pdf \(soilassociation.org\)](#)

<https://www.teagasc.ie/crops/soil--soil-fertility/soil-analysis/soil-sampling/>



Relationships between soil food web, plants, organic matter, and birds and mammals
 Image courtesy of USDA Natural Resources Conservation Service
http://soils.usda.gov/sqi/soil_quality/soil_biology/soil_food_web.html.

Appendix 9: Canals and Biodiversity

Introduction

Canals while artificially created have intrinsic ecological conservation value (Briggs 1996).

In general terms, though the diversity and quality of canal biodiversity varies, (e.g. long canals passing through a variety of landscapes/geologies may be more diverse than shorter canals in urban settings), canals have an important role in nature conservation. In essence, their value is in providing diverse (or potentially diverse) habitats for a wide range of species in a network of wildlife corridors in both urban and rural settings. The fact that these corridors are accessible to all, in particular in an urban setting, adds to their value.

The concept of the canal as an ecological corridor as defined in Good 1998:

An ecological corridor is considered to be a linear landscape feature of natural or semi-natural habitat. Such areas of habitat, connecting relatively closely spaced core sites are considered extremely important for the maintenance of landscape permeability.

As stated by the EPA report on Water Quality in Ireland 2016 to 2021. The objective for canals is good ecological potential (GEP) rather than good ecological status because they are categorised as Artificial Water Bodies. This is considered the best ecological condition they can achieve due to their modified nature. Ecological potential is classified according to five categories; maximum, good, moderate, poor or bad. Achieving the optimum GEP for a canal in an urban setting, may be difficult as local impacts such as surface water runoff, dumping, point source pollution etc. must be strictly controlled.

A combined initiative by Waterways Ireland/EPA and Inland Fisheries Ireland has carried out an initial ecological classification for Ireland's Artificial Waterbodies the majority of which are canals.

The most recent assessment of the ecological potential of canals in Ireland is contained in the **Water Quality in Ireland 2016 – 2021, EPA 2021**

<https://www.epa.ie/publications/monitoring--assessment/freshwater--marine/water-quality-in-ireland-2016-2021/water-quality-2016-2021/water-quality-in-ireland-2016--2021-.php>

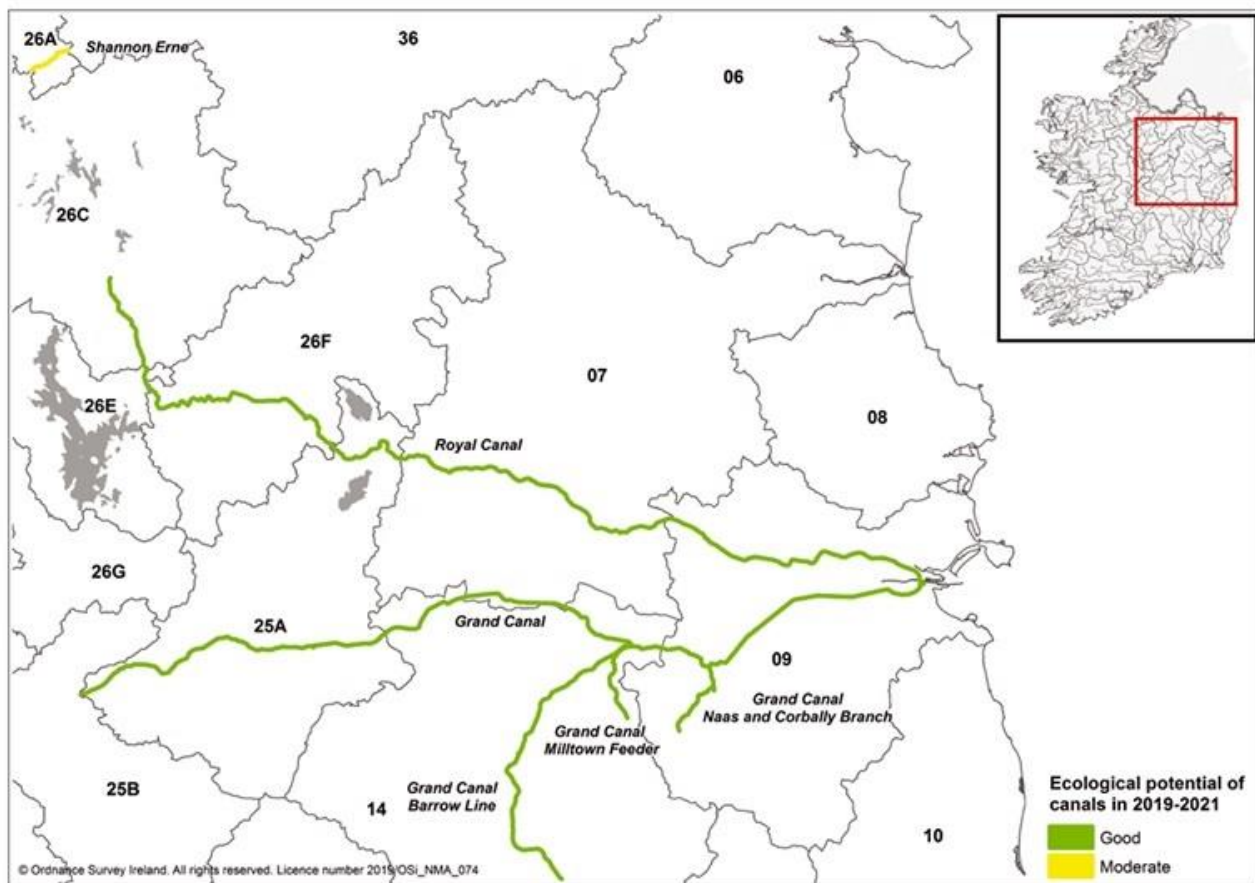


Figure 1 Ecological Potential of monitored canal water bodies 2019-2021 (EPA 2022)

Ecological Character of Canals

A canal is essentially an artificially maintained aquatic habitat, which together with an associated suite of canal-fringe habitats would revert to swamp and scrub without ongoing management. Canals differ from natural watercourses because they have:

- Controlled levels,
- Slow flows,
- Are linear water bodies without significant change in channel depth or natural meanders,
- Require on-going maintenance e.g. dredging for continued functionality.

Canals which have very light or no boat traffic are ecologically most similar to a series of inter-linking ponds (SNIFFER *op. cit.*). Their flora/fauna reflects a community somewhat transitional between a very sluggish depositing river and a series of interlinking ponds. A cross section of most well managed canals support a range of habitats. These can include open water, emergent fringes, marshy banks, meadow-like fringes, mown grassy embankments, bordering hedges and scrub-fringes (Briggs 1996). Canals with little boat usage and maintenance quickly infill and must be frequently dredged for maintenance purposes.

In Ireland, such maintenance works are carried out by Waterways Ireland in consultation with the National Parks and Wildlife Service where works are in or adjacent to designated sites.

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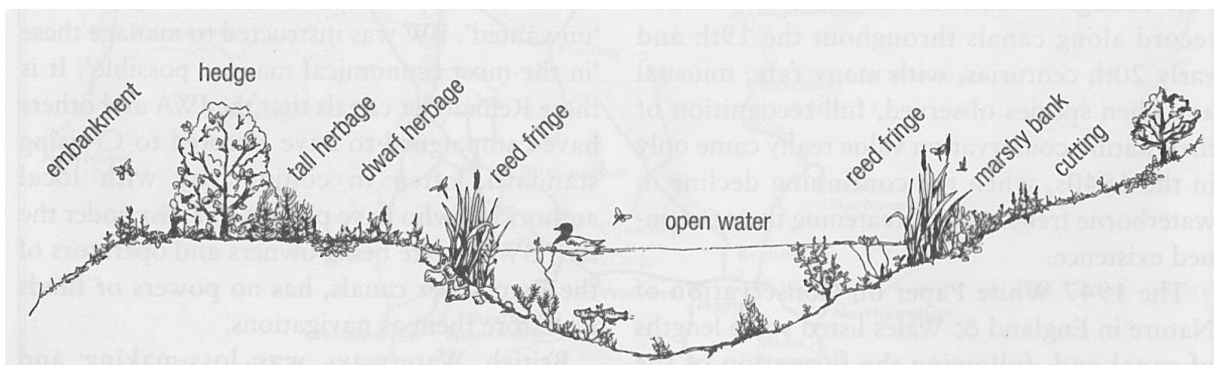


Figure 2 A cross section of a well-managed canal showing a range of associated habitats of conservation interest (Briggs 1996).

Holistic View of Canal Corridor Management

Many species that are dependent upon aquatic habitat for part of their life cycle (e.g. amphibians and several aquatic invertebrates), are threatened by both the loss of the aquatic habitat and suitable adjacent habitats. Frogs for example spend the majority of their adult life away from ponds/canals and depend on adjacent terrestrial habitat of good quality for foraging and hibernation sites. Similarly, several species of adult dragonfly hunt their prey in grasslands and along woodland rides away from their breeding waterbodies. Therefore, to conserve the ecological value of canals a holistic approach must be taken to the ecological management of areas of adjacent habitat, in particular areas of conservation value adjacent to the canal and in the canal corridor, such as areas of emergent vegetation and adjacent semi natural wet grasslands, woodlands, and meadows.

The transformative power of canal corridors comes from the connections they are capable of producing both ecologically in terms of linking habitat through urban areas and in a social context through links made with local communities, recreational and educational activities.

Invasive Species in Canals

Invasive aquatic plants in Canals

Amongst the most problematic alien species in canal systems in Ireland are invasive aquatic plants. Spread of non-natives often outcompete native plant species which are thereby replaced (see list of species of concern below). The impact to the local ecology and the functioning of local habitats can be highly negative. In the worst cases waterways may become completely choked by a single species and the local native biodiversity destroyed.

It should be noted that;

*the ecological potential of a canal water body is no longer downgraded due to the presence of the invasive macrophyte *Elodea nuttallii* (Nuttall's waterweed). *E. nuttallii* is now widespread throughout the Royal, Grand and Barrow Canals and it is considered that no mitigation measures will bring about its effective control or eradication (EPA 2022).*

Invasive aquatic animals in canals

As most of the fish in Ireland were introduced by people throughout the history many fish species could be regarded as invasive. However, those which are well established and are considered to be naturalised species, including many coarse fish species, as they have reached some sort of equilibrium in the environment. One coarse fish species which is considered problematic is Dace (*Leuciscus leuciscus*), as it can invade natural river systems and out compete native species in river systems.

In more recent times new invertebrate species have been released into Irish waterways. These include Asian Clam, Zebra Mussel, and Bloody Red Shrimp.

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In recent years invasive mammal species are of growing concern these include American Mink (*Neovison vison*), a semiaquatic species of mustelid native to North America, and the large rodent Coypu or Nutria (*Myocastor coypus*).

Alien Species of High Concern in Canal Habitat in Ireland (Source CAISIE Life+ Project this is not an exhaustive list and other invasive species may also occur in canals)

- *Azolla filiculoides* (Red Water Fern)
- *Crassula helmsii* (New Zealand Pygmyweed)
- *Elodea nuttallii* (Nuttall's Pondweed)
- *Lagarosiphon major* (Curly-Leaved Waterweed)
- *Myriophyllum Aquaticum* (Parrot's Feather)
- *Leuciscus leuciscus* (Dace)
- *Neovison vison* (American Mink)
- *Hemimysis anomala* (Bloody Red Shrimp)
- *Crangonyx pseudogracilis* (Northern River Crangonyctid)
- *Dreissena polymorpha* (Zebra Mussel)

Terrestrial Plants of Concern

- *Fallopia japonica* (Japanese Knotweed)
- *Heracleum mantegazzianum* (Giant Hogweed)
- *Impatiens glandulifera* (Himalayan Balsam)

ACTIONS FOR CANALS

Action-Develop a Comprehensive Local Canal Conservation Management Plan

Waterways Ireland manage the canal network in Ireland. Communities working with Waterways Ireland can help develop a comprehensive conservation management plan that ensures the proper development of the canal to conserve biodiversity and deliver community recreational uses.

Conservation management includes at its core an excellent baseline knowledge of the canal biodiversity and water quality carried out by a variety of experts, including ecologists and aquatic scientists. The plan should also highlight any issues of concern re. the ecological condition of the canal, and its adjacent corridor and solutions for any problems put forward. For example, for example locations of point source pollution could be highlighted and mechanisms to stop such sources put forward.

For canals conservation management can include some essential dredging and re-grading of the canal bed. Such major works must be carried out in consultation with the appropriate stakeholders and statutory authorities, Waterways

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Ireland, Inland Fisheries Ireland, NPWS, Kildare Co. Council etc. and be in compliance with all relevant environmental legislation and regulations.

The management of emergent vegetation and the canal corridor is also extremely important for a canal to achieve good ecological potential as it creates strong ecological links with the surrounding landscape and local ecological hubs.

Restoration of neglected canals is a task that can be achieved with relatively little input. In many cases a few days of volunteer effort or a day with an earth-mover/dredger (appropriately used) can restore canal function and good ecological potential.

Action 1 - Carry out Litter Picks and Litter Removal from Canal and Canal Corridor

An easy action for getting communities involved in the care of the local canal is to organize litter picks from the canal and surrounds. Such litter picks could involve local organizations such as tidy towns, angling clubs etc.

Action 2 - Develop the Local Canal as Ecological Educational Resource

Canals offer a wealth of opportunities for learning, both in school and in the outdoor classroom - the canal corridor itself. They are active landscapes, which can introduce open, green space to various parts of urban area and let students learn by doing in a natural oasis within the urban fabric. An outdoor classroom provides an opportunity to experience natural and human-created characteristics of the environment in a natural setting. It is a tool that allows educators to take a hands-on approach and move their educational curriculum outdoors. For example, a bridge over a canal allows students to view an aquatic habitat without disturbing it. Bridges and pontoons can be very useful as safe access points for getting water samples and facilitate *pond dipping* to explore aquatic organisms. They also provide a great opportunity to perform dissolved oxygen, pH, temperature, and other types of water quality tests.

Action 3 - Develop Canal Corridor for Leisure and Eco Tourism Activities

In addition to being a very important wildlife corridor that support species and habitats of high value, canals have a great potential to increase the ecotourism offering of a locality. Access to canal corridors provides greater access to the outdoors, enhances wellbeing, brings communities and visitors closer to the water, facilitates engagement with nature, increases leisure and recreation opportunities (e.g aquatic sports, angling, walking, boating etc.), supports local regeneration, sustainable tourism and improved local economies. The main caveat of the use of canal corridors for recreation is that it is done in a sustainable manner with no significant impact to habitats or species of the canal corridor. It is therefore recommended that any activities proposed for the canal corridor should be thoroughly assessed by professional ecologists and aquatic scientists prior to commencement.

Action 4 - Halt Spread of Invasive Species

For a local canal area there is an opportunity to develop a special consideration of the canal corridor in a local **Integrated Alien Species Management Plan**. This plan requires a structured and coordinated approach to understand the extent of the problem with invasive species in the local canal corridor, including site surveys, developing ways to minimise their impact and to prevent further introductions and spread. This requires a comprehensive strategy, and establishment of links with Waterways Ireland, Inland Fisheries Ireland, National Parks and Wildlife Service and Invasive Species Ireland and other local community groups such as anglers, boat clubs, etc.



Action 5 - All Canal Users should Implement Check-Clean-Dry Biosecurity Protocol for canal and river users

CHECK CLEAN DRY

As a water user, people may unknowingly be helping to spread invasive species from one water body to another in equipment, shoes and clothing.

Help stop this happening by following three simple steps when leaving the water:

CHECK gear, clothing and footwear after leaving the water for mud, aquatic animals, or plant material. Remove anything you find and leave it at the site.

Ardclough Biodiversity Action Plan 2023-28



CLEAN everything thoroughly as soon as possible. Pay particular attention to nets, waders, and areas that are damp and hard to inspect. If possible, use hot water (at least 45°C) or a high-pressure spray.



DRY all equipment and clothing until dry for at least 48 hours – some species can live for many days or weeks in moist conditions.

If complete drying is not possible –

Disinfect cleaned items. Use a disinfectant such as Virkon Aquatic, Virasure or another appropriate disinfectant. Items can be soaked, thoroughly sprayed or wiped down with disinfectant. Extreme care should be taken when using disinfectants and the manufacturer's guidelines should always be followed.

Contaminated gear (e.g. equipment, boats, footwear, and clothing) is one of the most common causes of the spread of invasive species to new waterways. Invasive plants and animals can be small and hard to spot so are easily spread on damp equipment and clothing. All water users can protect our wildlife and environment following the Check Clean Dry code. A range of guidance and awareness raising materials for anglers, boaters, canal users, paddle sport enthusiasts and other water users have been developed.

References & Links

2012: Briggs, Jonathan, Canals under new management - A review of wildlife value, issues and opportunities, British Wildlife:, 23:314-323

1996: Briggs, Jonathan, Canals - Wildlife Value and Restoration Issues, British Wildlife:, 7:365-77

Good, J. A. (1998) The potential role of ecological corridors for habitat conservation in Ireland: a review. Irish Wildlife Manuals, No. 2, 72pp

EPA 2022 *Ecological Potential of monitored canal water bodies 2019-2021*

Waterways Ireland: <https://www.waterwaysireland.org/>

Appendix 10: Legal Protection of Biodiversity in Co Kildare

Biodiversity is the different plant and animal life that can be found in a place. We in Kildare live within our natural environment. The protection of this environment provides many benefits to the community. Over time the impact of people on the environment in County Kildare has degraded some habitats. With greater understanding of the importance of the protection of nature various laws, help protect and maintain our precious natural environment within our County.

Our natural environment is legally protected on a European, National and County basis.

The main legislation to protect Biodiversity in Ireland is the Wildlife Acts 1976 to 2022.

This is a collective citation for the following:

- [Wildlife Act 1976 \(no. 39 of 1976\)](#)
- [Wildlife \(Amendment\) Act 2000 \(no. 38 of 2000\)](#)
- [Wildlife \(Amendment\) Act 2010 \(no. 19 of 2010\)](#)
- [Wildlife \(Amendment\) Act 2012 \(no. 29 of 2012\)](#)
- [Heritage Act 2018 \(no. 15 of 2018\), Part 3](#)
- [Planning, Heritage and Broadcasting \(Amendment\) Act 2021 \(no.11 of 2021\), Chapter 3](#)
- [Flora \(Protection\) Order, 2022](#)

Nature conservation legislation was substantially enlarged and improved by the Wildlife (Amendment) Act, 2000 and the Birds and Natural Habitats Regulations.

The Acts affords strict **protection for species** from injury and disturbance and also to their necessary **habitat** (e.g. breeding, resting sites). There are 32 species of mammal protected under the act, all birds, 86 plants and 3 invertebrates.

Species Protected under the Wildlife Act

32 Species of Mammal	All Birds
86 Plants	3 Invertebrates

The infographic features three small images on the right side: a slug, a crayfish, and a pile of river stones.

Ardclough Biodiversity Action Plan 2023-28

European Law- Special Protection Areas and Special Areas of Conservation

Much of our Environmental Law comes from obligations under European Union laws. For example, the Birds Directive, Directive 2009/147/EC, requires the protection of habitats of particular importance to bird life. These habitats are designated as Special Protection Areas for Birds (SPA's). In County Kildare, we have an important bird habitat in Poulaphouca Reservoir which is a designated SPA.

An SPA provides for the protection of the habitat. Activities such as directly threatening birds for example egg taking and the destruction of nests are prohibited. Hunting on such sites is strictly controlled and the hunting of some birds is not permitted.

Another EU law which provides habitat protection is the Habitats Directive (Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna). This Directive provides for the creation of a network of European Sites known as Natura 2000 sites. SPAs for birds are included in this network for nature. Other areas supporting habitats and species of conservation importance are protected under the Habitats Directive as Special Areas of Conservation. These European Sites are strictly protected, they recognise that the habitat protected is important on a European wide basis. Under the Habitats Directive, any project or work on the site which would potentially cause damage must be assessed in a scientific manner. These plans can only be approved if they represent an overriding interest and there is not an alternative. If a European site is damaged by necessary works, then Compensatory Habitat must be provided to ameliorate the damage. Kildare has several SACs.

The most 'protected' conservation sites for Biodiversity in County Kildare are the **European Sites** i.e. the **7 SACs** and **1 SPA** in County Kildare and are shown on the Map 1 overleaf.

Natural Heritage Areas

There is also, under the Wildlife Amendment Act 2000, provision for the protection of National Heritage Areas which are recognised as protecting nationally important habitats.

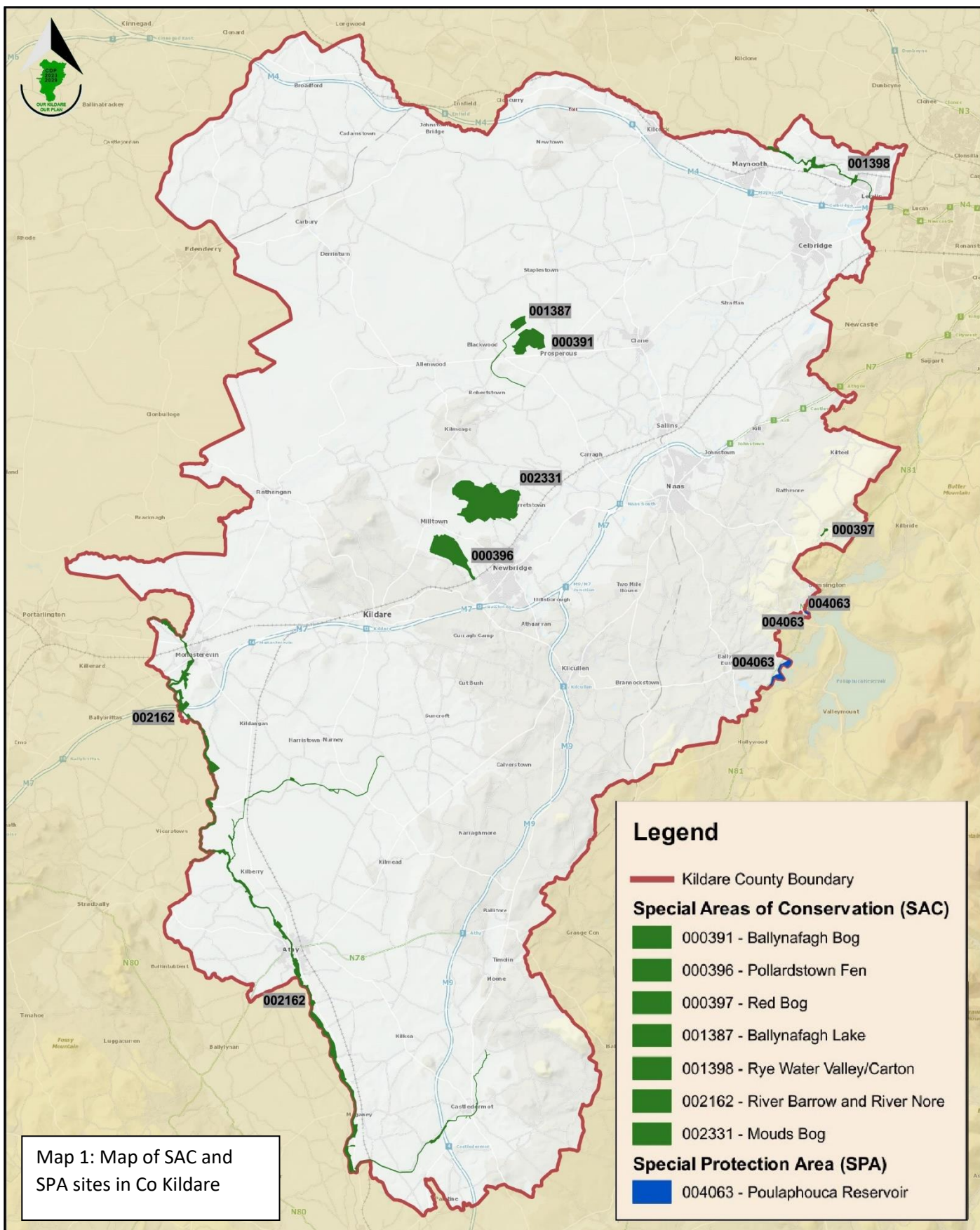
The EU Biodiversity strategy for 2030 aims to protect nature and reverse the degradation of ecosystems.

Protected under Wildlife Amendment Act 2000 from the date they have been formally proposed.

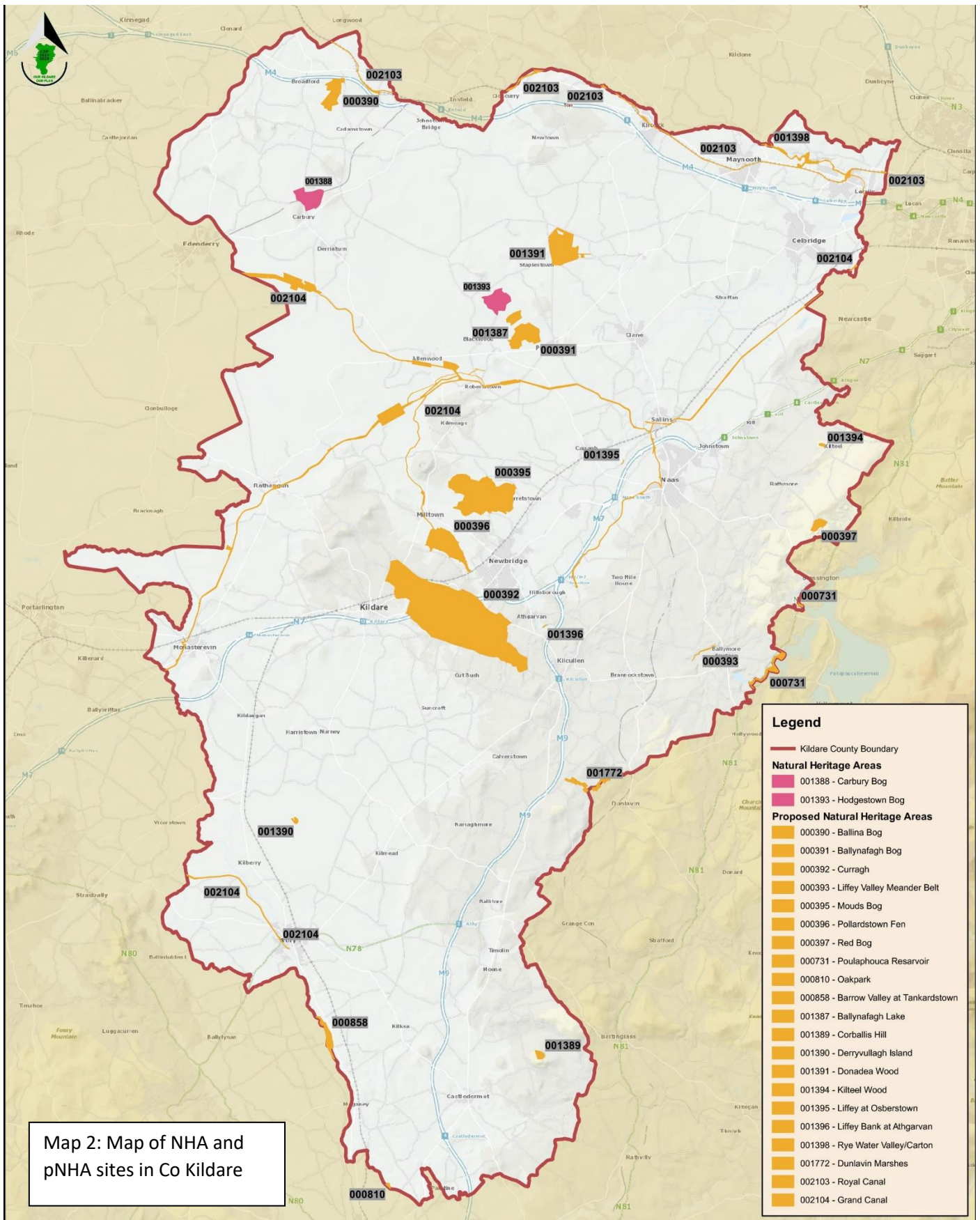
Proposed NHAs have **limited protection** but are treated the same as NHAs under the **County Development Plan** which has legal standing under the Planning and Development Act 2000. The table below lists all the sites in Co Kildare (see Map 2 on following pages).

Site Code	Site Name	Site Code	Site Name
Natural Heritage Areas		000858	Barrow Valley at Tankardstown
001388	Carbury Bog	001387	Ballynafagh Lake
001393	Hodgestown Bog	001389	Corballis Hill
Proposed Natural Heritage Areas		001390	Derryvullagh Island
000390	Ballina Bog	001391	Donadea Wood
000391	Ballynafagh Bog	001394	Kilteel Wood
000392	Curragh	001395	Liffey at Osberstown
000393	Liffey Valley Meander Belt	001396	Liffey Bank at Athgarvan
000395	Mouds Bog	001398	Rye Water Valley / Carton
000396	Pollardstown Fen	001772	Dunlavin Marshes
000397	Red Bog	002103	Royal Canal
000731	Poulaphouca Reservoir	002104	Grand Canal
000810	Oakpark		

Ardclough Biodiversity Action Plan 2023-28



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Role of Local Authorities in protection of Biodiversity

As a public authority Kildare Co. Council (KCC) has **obligations to protect biodiversity** under The European Communities (Birds and Natural Habitats) Regulations 2011 477/2011.

KCC exercises **consent functions** (e.g. water management, road development, housing and planning) which may have implications for or effects on nature conservation. It is mandatory to exercise these functions so as to secure compliance with the Wild Birds and Natural Habitats Directives.

For **European Sites, (SACs and SPAs)** and **candidate** European Sites Public Authorities are compelled to take appropriate steps to: 1) avoid deterioration of natural habitats; 2) avoid significant disturbance of species; 3) avoid pollution; 4) take appropriate enforcement action; and 5) a Public Authority must also strive to avoid deterioration of natural habitats and species **outside** a European or Candidate European Sites

Other Environmental Legislation of Importance to Biodiversity

The **Strategic Environmental Assessment (SEA) Directive (CEC, 2001)**;

- Aims to ensure a high level of environmental protection and that environmental considerations are taken into account when preparing, adopting and implementing **public plans and programmes**.
- It promotes sustainable development by ensuring that environmental assessment is carried out of certain plans and programmes likely to have significant effects on the environment.
- Public plans and programmes covered by the Strategic Environmental Assessment (SEA) Directive are subject to an **environmental assessment** during their preparation and before their adoption, e.g. The Kildare County Development Plan.

The **Environmental Impact Assessment (EIA) Directive, as codified (CEC, 2011)**.

- Ensure that projects above given thresholds likely to have significant effects on the environment are subject to a comprehensive assessment of environmental effects prior to development consent being given.

Laws to Protect our Water

Ireland's water resources are protected through the implementation of EU and national legislation.

- Water Framework Directive
- River Basin Management Plan 2018 - 2021
- Nitrates Directive
- Management of Surface Water Runoff in Urban Areas

Forthcoming Laws for Nature Conservation

EU Nature Restoration Law

This proposed new law aims to repair damage done to Europe's nature by 2050.

It will be the first-ever legislation that explicitly targets the restoration of Europe's nature, to repair the 80% of European habitats that are in poor condition, and to bring back nature to all ecosystems, from forest and agricultural land to marine, freshwater and urban ecosystems. Under this proposal for a Nature Restoration Law, legally binding targets for nature restoration in different ecosystems will apply to every Member State, complementing existing laws. The aim is to cover at least 20% of the EU's land and sea areas by 2030 with nature restoration measures, and eventually extend these to all ecosystems in need of restoration by 2050.

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